

ANIMAL KEEPERS'

FORUM

JULY 2008

NATIONAL ZOOKEEPER WEEK 20-26 JULY 2008

Fostering Professionalism in Animal Care Among Zoo Keepers

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Animal Keepers' Forum is published monthly by the American Association of Zoo Keepers, Inc., 3601 S.W. 29th Street, Suite 133, Topeka, KS 66614-2054. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Postage paid at Topeka, KS.

AAZK Executive Director: Ed Hansen, AAZK, Inc., Topeka KS

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34th Anniversary - 1974 - 2008

MISSION STATEMENT

American Association of Zoo Keepers, Inc.

To provide a resource and a forum of continuing education for the animal care professional and to support zoo and aquarium personnel in their roles as animal care givers, scientific researchers, public educators and conservationists. To promote zoos and aquariums as cultural establishments dedicated to the enrichment of human and natural resources; to foster the exchange of research materials, enrichment options and husbandry information through publications and conferences which will lead to a greater understanding of the needs and requirements of all animals.

This month's cover features the official logo for National Zoo Keeper Week (NZW) which is scheduled for July 20-26th this year. This is the second annual NZW recognizing the profession of zookeeping and zoo keepers with events planned at zoos and wildlife parks around the country. We hope you and your AAZK Chapter and/or Zoo Staff will take this opportunity to show your appreciation for the dedication and commitment of those who have chosen to make the care of captive exotic animals not only their career, but their passion. Zookeeping has come a very long way since the days when keepers were considered simply manual laborers who "scooped poop" for a living. Today's zoo professional is well-educated and involved not only in basic animal husbandry responsibilities, but also in environmental enrichment, operant conditioning and training, reproductive research and, in many cases, conservation efforts both in situ and ex situ. So take the time this month to celebrate your profession and continue to learn and grow within it. Zoo Keepers ~ the backbone of every zoological facility.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com<. If you have questions about submission guidelines, please contact the Editor.

**Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses:

You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxmail.com<
You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@zk.kscoxmail.com<

Mailing Address:

AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054

**AAZK website Address: www.aazk.org
BFR Website: <http://aazkbfr.org>**

Scoops & Scuttlebutt



Nominations Open for 2010 Indianapolis Prize

Nominations for the 2010 Indianapolis Prize, the world's leading award for animal conservation, will be accepted from June 1 – December 1, 2008. The \$100,000 biennial award is given to an individual animal conservationist who has made significant achievements in advancing sustainability of an animal species or group of species. It represents the largest individual monetary award for animal conservation in the world and is given as an unrestricted gift to the chosen recipient.

Anyone can nominate a candidate for the Indianapolis Prize. To be accepted as Nominees, individuals must have accomplished a personal achievement or series of achievements that have resulted in a demonstrable positive impact on a species or group of species that is likely to improve the species' likelihood of long-term survival. For complete guidelines and to learn more about the nominating process, send an e-mail to nomination@indianapolisprize.org.

The winner of the 2008 Indianapolis Prize is George Schaller, Ph.D., senior conservationist for the Wildlife Conservation Society and Vice President of the Panthera Foundation, who is the world's pre-eminent field biologist. For more than 50 years, George Schaller has set the standard for working with endangered animals in the field and in working with native populations to create efficient ways for those animals and humans to co-exist.

The 2006 winner was Dr. George Archibald, co-founder of the International Crane Foundation, who has dedicated more than 30 years to trying to save the 15 remaining species of these magnificent and increasingly endangered birds.

Past nominees and finalists for the Indianapolis Prize are representative of the most significant conservationists throughout the world. Among them have been: renowned whale and ocean researcher Roger Payne; Iain Douglas-Hamilton, considered the world's leading elephant researcher; and, two heroes to big cats – Cheetah Conservation Society founder Dr. Laurie Marker and Snow Leopard Conservancy founder Dr. Rodney Jackson.

The Indianapolis Prize was initiated in 2004 by the Indianapolis Zoo as a significant component of its mission to inspire local and global communities to celebrate, protect and preserve our natural world through conservation, education and research. Eli Lilly & Company provided funding for the 2006 and 2008 Indianapolis Prize.

Correction on Giant Panda Article

Please note the following clarification that should have been noted in the article "Implementation of a Positive Reinforcement Training Program for 1.0 Juvenile Giant Panda (*Ailuropoda melanoleuca*) at Smithsonian's National Zoological Park" by Nicole Meese, Animal Keeper, NZP published in the June 2008 issue of *AKF* pgs. 233-238: The author wished it noted that on 3/28/07, keeper staff stopped going in the enclosure with Tai Shan due to his size and weight. Prior to that date, target training was done in the yard with him. By that date he had good name recognition and was coming in when we called most of the time. Our apologies to Nicole and we regret the omission of this clarification from her article.

T-Shirt Sales Benefit Coral Reef Conservation

The Center for Ecosystem Survival [CES] (SaveNature.org) has teamed with Luella's "Pagan Sun" T-shirts to help preserve highly endangered coral reefs in Palau, Micronesia. Each t-shirt purchased will also adopt 1/4 acre of endangered coral reef. Called 'rainforests of the sea', coral reefs are integral to our marine ecosystems and one of the most biologically diverse ecosystems on Earth. Reefs are one of the essential life-support systems of the planet, with one tenth of the fish feeding island and coastal people. Palau has an abundance of sea turtles, dugongs, giant clams, chambered nautilus, 600 species of corals and 1400 species of fish - all of which are endangered. The goal of this current collaborative effort between CES and Tonic Generation.com is to preserve 625 acres of

endangered coral reefs in the Pacific Ocean. To learn more or purchase a t-shirt visit <http://www.tonicgen.com/causes/sun>

SaveNature.Org is celebrating its **20th Anniversary** this year! They have promoted conservation by raising and donating \$3.5 million to purchase and protect healthy terrestrial and aquatic ecosystems throughout Latin America, the Pacific and the Caribbean.

Their Insect Discovery Lab conducts 700 hands-on science programs for children annually using live insects and their relatives. They have been promoting the use of local native plants for wildlife gardening to enhance pollinator habitats through their programs, fact sheets and website since our founding in 1988.

SaveNature.Org headquarters are in SF but is a broad consortium of over 130 institutions from the U.S. and Canada. We work with schools across the US in all 50 states.



Dr. Laurie Marker & Chewbacca

Zoological Society of San Diego Recognizes Cheetah Expert's Lifetime Achievements

Laurie Marker, Ph.D., who has worked with cheetahs for nearly 35 years, is the recipient of the 2008 Lifetime Achievement Award from the Zoological Society of San Diego. As an American Conservation Scientist and Humanitarian, Marker has been working with local African communities towards ensuring the survival of cheetahs.

Marker founded the Cheetah Conservation Fund in 1990 and based its international Centre in Namibia, the country with the last large remaining wild cheetah population. The world population of wild cheetahs is approximately 10,000 individuals and is listed as vulnerable on the IUCN Red List.

Through her work in Africa she has conducted extensive research into cheetah biology and ecology which has greatly increased the world's understanding of the fastest land animal. Through education programmes for local African schools and the livestock farming communities where cheetahs roam, she has helped change public attitudes to allow this unique predator and humans and

their livestock to co-exist. Marker has eased local community conflicts with cheetahs by inducing non-lethal predator control like the Kangal Anatolian Shepherd Livestock Guarding Dog. In the lab, she has helped to identify the lack of genetic diversity in some cheetah populations. Her decades of effort represent a lifetime achievement.

Marker's conservation program in Namibia was the first long-term study of cheetahs outside of protected areas, where 90% of the remaining cheetahs are found due to conflict with larger predators in game reserves. However, despite the many successes of Marker's CCF programmes, the cheetah is still Africa's most endangered big cat. The Website for CCF is: <http://www.cheetah.org/>

The Zoological Society's of San Diego Conservation Medal seeks to support effective conservation accomplished by direct effort and advocacy. The Lifetime Achievement Award will also include a monetary award to assist with the conservation work being done by the recipients.

Israeli Elephant Expert Dies in Ethiopian Blast

Professor Yehezkel Shoshani, a world-renowned elephant expert, was killed after a minibus blew up in the heart of Addis Ababa on May 22nd. Two other passengers were killed, and nine were seriously wounded.

Shoshani, 65, dedicated his life to the study of elephants. For eight years, he studied elephant communities in the east African state of Eritrea, and moved to Ethiopia last year to teach at the University of Addis Ababa.

In an interview during a recent visit to Israel, Shoshani stated that the volatile political situation near the Eritrea-Ethiopia border was one of the reasons that motivated him to move to Ethiopia. Shoshani dedicated a lifetime of work to preserving Ethiopia's declining population of elephants in a national park near the Eritrea border. The area has witnessed some fierce fighting between the two countries.

Shoshani grew up in Tel Aviv, and became interested in elephants after reading in his youth about a friendship between a man and an elephant. He studied zoology in Michigan and went on to carry out research in Sri Lanka and Kenya. He became a leading elephant expert with his research focusing mainly on elephants' anatomy and evolution.

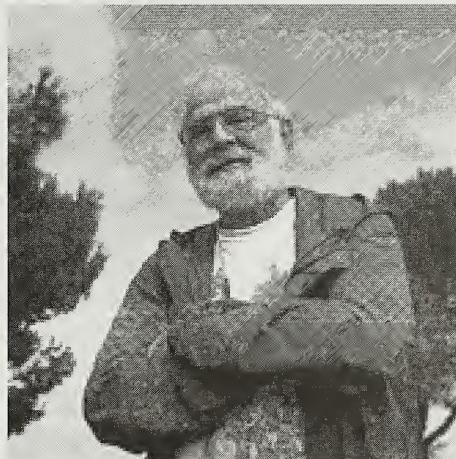
Source: Haartz.com 5/22/08

The following was received at AKE from Sandra Shoshani, Bloomfield, MI:

With great sorrow and tears, I write this message to you, our friends and colleagues: On Tuesday evening, May 20, in Addis Ababa, Ethiopia, Hezy Shoshani was one of the victims of a bomb attack on a public minibus taxi as he was returning to his home from Addis Ababa University. He was taken to hospital and operated on but he had massive trauma and he died on Wednesday morning. Initially, news reports did not identify a foreigner among the group of 12 people involved. Only on Wednesday was an Israeli professor reported to the Israeli Embassy. The staff members recognized his body and the American Embassy and his family in Israel and wife in US were notified later on Wednesday. Arrangements are being made for a funeral service in Israel, as soon as his body is released. Memorial services may be held in Addis Ababa, where he had been teaching for 1.5 years and doing elephant research.

In a short message written to me earlier this morning, Ian Redmond of UK wrote: we will all carry memories of Hezy's infectious laugh, thirst for knowledge and love of life.

Be strong and do not let Hezy's life be in vain – cherish wildlife!



Elephant expert Yehezkel Shoshani

(Photo by Tomer Appelbaum)

Coming Events

EAZA (European Association of Zoos and Aquariums) Annual Conference - September 16 to 21, 2008 in Antwerp Zoo, Belgium. For further information please visit <http://www.eaza.net><

35th Annual American Association of Zoo Keepers National Conference - September 24-28, 2008 in Salt Lake City, UT. The guiding theme, "Elevating Animal Care", will focus on concepts that highlight professionalism, creativity and initiative in the realm of conservation, education and animal husbandry. For more information, please visit www.utahaazk.org, contact the Utah Chapter AAZK at utahaazk@hoglezoo.org or call (801) 584-1784.

Association of Zoo Veterinary Technicians 28th Annual Conference - October 2-6, 2008 at Buttonwood Park Zoo in New Bedford, MA. For more information visit www.azvt.org<

2008 Elephant Managers Association Conference - October 3-7, 2008 in Orlando, FL. This meeting will focus on the challenges, experiences and achievements of successful captive management programs. The program organizers, The Ringling Bros and Barnum & Bailey Center for Elephant Conservation and the EMA are seeking presentations addressing programs for training qualified elephant personnel, the link between captive management programs and range country populations, as well as research and conservation. See <http://www.elephant-managers.com/> for further information.

4th IUCN World Conservation Congress - October 5 - 14, 2008 in Barcelona, Spain. For more info go to <http://www.iucn.org/congress/2008>

The 2nd SSP Orangutan Husbandry Workshop - October 12 -14, 2008 at the Saint Louis Zoo, St. Louis, MO. This workshop will focus on the care andmanagement of the orangutan in a zoological parks and sanctuaries. The workshop will bring together orangutan caregivers and managers, researchers, and field biologists to share and disseminate the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of orangutans. Please contact Terri Hunnicutt at pongapan@yahoo.com or hunnicutt@stlzoo.org for further information

63rd Annual Conference of WAZA (World Association of Zoos and Aquariums) - October 19 to 23, 2008 in Adelaide, Australia. For further info go to <http://www.waza2008.com.au>

2008 Zoological Registrars Association Annual Conference - October 22-25, 2008. Hosted by The Saint Louis Zoo. The Sheraton Westport Chalet has been selected as the conference hotel and they have offered us the government rate of \$106 per night. The hotel provides free airport shuttle and parking. If you have any questions, please do not hesitate to contact Rae Lynn Haliday at haliday@stlzoo.org or at (314) 781-0900 x 372.

Elephant Conservation & Research Symposium - November 11-13, 2008 at the Nong-Nooch Tropical Garden & Resort in Pattaya. For further information contact Dr. Harald M. Schwammer at h.schwammer@zoovienna.at or see their website at <http://www.elephantconservation.org/2008symposium.php>

The 5th Crisey Zoological Nutrition Symposium - December 12-13, 2008 at the North Carolina State University School of Veterinary Medicine. This year's focus will be "Obesity in Zoological Species". For registration and a skeleton schedule please view <http://www.cvm.ncsu.edu/conted/zoonutrition/>

Zoos and Aquariums Committing to Conservation - January 23-26, 2009. Hosted by the Houston Zoo, Houston, TX. ZACC is a bi-annual event that promotes the role of zoos and aquariums in supporting conservation activities worldwide, both at their institutions and in the field. Bringing together individuals from different countries and disciplines, ZACC conferences help to build a stronger and more effective global network for wildlife and habitat conservation, and to establish direct links to zoos, aquariums, and their constituencies. For info contact: <http://www.houstonzoo.org/zacc><conservation@houstonzoo.org<

Prosimian Husbandry Workshop - April 30- May 2, 2009. Hosted by the Cleveland Metroparks Zoo. The workshop will emphasize group discussion of captive prosimian husbandry and management issues. Look for registration, lodging, and workshop information at the workshop web-page, www.clemetzoo.com/prosimianworkshop starting August 2008.

The 9th International Conference on Environmental Enrichment - May 31 - June 5, 2009 in Torquay, Devon, UK. First Call for papers and Registration. Go to www.reec.info for details.

Neotropical Primate Husbandry, Research, and Conservation Conference - October 13-15, 2009 in Chicago, IL. Hosted by the Brookfield Zoo. This conference will focus on a variety of topics pertaining to neotropical primates and will bring together staff from zoological parks, sanctuaries, and universities, as well as field researchers and range country biologists to share the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of neotropical primates. The workshop will include three days of presentations, a poster session, as well an icebreaker, silent auction, and banquet. Additional information regarding registration fees, travelinformation, and submission of abstracts will be made available in late 2008. Please contact yince.sodaro@czs.org for additional information.

**Post Your Coming Events Here
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From the President . . .

Why Should We Form a Chapter of AAZK, Inc.? What are the Benefits?

These two questions are commonly asked of the AAZK Board and Staff. Curiously, we always seemed at a loss for words when this occurred. We all know that Chapters, along with individual members, form the backbone of this Association. At last count, there were 84 local Chapters of this Association, collectively raising hundreds of thousands of dollars for conservation annually. Chapters enhance the vitality of the Association through their duty obligations and donations. Chapters also work hard to promote their conservation, education, networking, and professional development goals, as well as the similar goals of their zoological institutions and this Association. But what exactly do the members of these Chapters get out of it? Isn't this just a lot of extra work? What are the benefits of operating an AAZK Chapter?

The benefits of working as a 501(c)(3) nonprofit

As a Chapter of AAZK, Inc., you are eligible for the same benefits this Association receives as a 501(c)(3) nonprofit organization. These benefits may include:

- Tax exemptions
- Recognition by the public that your Chapter is legally recognized as a 501(c)(3) organization lends credibility to your cause.
- Benefactors to your Chapter can receive tax deductions for their donations.
- Chapters may be eligible for nonprofit mailing rates.
- Chapters may be eligible for free public service announcements to promote their events.

To find out exactly how these benefits may apply to your Chapter, please feel free to contact the AAZK, Inc. Administrative Office for clarification. Also, be aware that operating as a Chapter of this Association comes with certain obligations. Certain actions or inactions of a Chapter could actually influence the nonprofit status of the entire Association. Therefore, it is important that Chapters are aware of their responsibilities. Descriptions of these responsibilities may be found in the AAZK Operations Manual (available to download from the Member's Only section of the website), and are also highlighted in the Y column of our electronic newsletter *INSIGHT*.

The Benefits to the Chapter

Chapters consist of professional AAZK members who share common goals and objectives. Most commonly, these goals revolve around conservation, education, professional development, and networking. Chapters are powerful in their ability to raise funds. Most zoological institutions recognize the significant contributions their AAZK Chapters make. Wise zoo directors realize that offering support and partnership to their local AAZK Chapters ultimately benefits the institution in attaining its own conservation and education goals. It is no coincidence that many of our nation's top zoological institutions also serve as home to some of our top AAZK Chapters. AAZK Chapters, with strong support from the various departments of their institutions, are capable of making a significant impact in conservation and the zoo industry.

The collective members of an AAZK Chapter can accomplish much more than one person working alone. Utilizing the benefits of 501(c)(3) nonprofit status, and hopefully their institutional support, Chapters can develop into a multi-talented and diverse team. These Chapters make significant contributions to the conservation movement. In addition to the hundreds of thousands of dollars that Chapters raise annually for conservation projects, Chapter members also roll up their sleeves and actively participate in conservation projects. Examples from Chapter projects include beach and river cleanups, habitat restoration, oil spill response, and volunteerism with organizations ranging from local wildlife rehabilitators to researchers of endangered wildlife in exotic locations.

Chapters enhance the conservation education movement as well. Zoo visitors recognize a keeper's knowledge and personal connection to wildlife. The credibility of AAZK Chapters and their members

with the zoo visitor and general public presents us with great opportunities to educate. Chapter education projects have included maintaining zoo graphics, websites, interpretation programs, hosting conservation presentations and speakers, and even community based programs, both local and abroad.

Chapters are also actively involved in promoting their own professional development endeavors. Chapters have been known to use their fundraising to send members to AAZK conferences. Many Chapters host professional workshops on skills such as enrichment, training, and hoof trimming, to name a few. Chapters also have powerful networking capabilities, hosting local and regional gatherings for keepers from multiple institutions. Chapters can also bid on hosting national AAZK conferences, a large task indeed, but one that is very rewarding.

I think one of the greatest benefits of operating an AAZK Chapter is the autonomy it presents to its members. An AAZK Chapter is something that belongs to its members. An AAZK Chapter provides its members the empowerment to achieve great things. Many keepers, especially in top-down management style institutions, are not often given the empowerment to take on leadership roles. An AAZK Chapter presents its members an outlet for creative energy, self-regulation, decision making, and ownership in the goals and objectives of a cause.

Finally, Chapters can and should be fun. You're volunteering all of your time, so you better be having fun. As a Chapter, make sure the business side of operations doesn't overshadow the fun factor. Be sure to make fun and camaraderie a major component of every Chapter function.

The Benefits to the Individual Members

You might not realize it, but working as a Chapter member, especially as an officer, will help you develop important skills that will serve you throughout your career. You will be working as part of a diverse team and developing your team building skills. You will learn various management skills that aren't always associated with zookeepers. Skills such as writing an effective meeting agenda, managing a budget, strategic planning, project management, leadership, mentoring and coaching, and communication. Working within an AAZK Chapter tells your supervisors that you are a leader among your peers. These skills will in turn serve you as you become more active in AAZK committees, serve as Board members, take on leadership positions in other organizations, or receive promotions throughout your career.

Many keepers start their careers thinking they can save the world, only to find they are swamped with the daily chores of zookeeping. Chapters provide you with an outlet for your creative energy. You might not feel like you're changing the world when you're scrubbing a pool, shoveling manure, or cleaning a filter. However, the satisfaction that comes from supporting the conservation project of your choice, running your own project, or participating in a national event like Bowling for Rhinos is priceless.

If you're interested in starting an AAZK Chapter, please contact the AAZK, Inc. Administrative Office to find out how to get started. Staff will be happy to send you a Chapter Formation Packet and answer any questions you may have.



A handwritten signature in cursive script that reads "Shane Good".

Shane Good, President, AAZK, Inc.
Cleveland Metroparks Zoo

National Zoo Keeper Week 2008

The week of July 20-26 marks the second annual celebration of National Zoo Keeper Week. Zoos across the country are invited to participate in recognizing zoo keepers and the role they play in animal conservation and education. There are approximately 5000 to 6000 animal care professionals in the U.S. who care for captive exotic animals. The dedication of zoo keepers across the country enables visitors to have a greater understanding of the animals on exhibit and an appreciation for the importance of preserving their habitats.

Last year, zoos nationwide honored keepers and the great work they do in caring for captive exotic animals and educating the public about the need to preserve our precious habitats and the animals that inhabit them. It was a long-overdue and well-deserved recognition.

National Zoo Keeper Week is celebrated each year beginning on the third Sunday in July. For more information about National Zoo Keeper Week and how your AAZK Chapter or Zoo can participate in activities, contact Bob Cisneros at bob.cisneros@aazk.org/

**NATIONAL
ZOO KEEPER
WEEK 20-26 JULY 2008**

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ASSOCIATION
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Fostering professionalism
in animal care
among Zoo Keepers

An Updated Guide to Herpetology Terminology

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Harvey B. Lillywhite

Foreword by Roger Conant

Orig. Ed. 2008 384 pp. ISBN 1-57524-023-8 \$112.50

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I Am a Keeper

By Kelly Hodge, Senior Aquarist Oceans
Indianapolis Zoo, Indianapolis, IN

*I am a steward,
A caretaker,
A speaker.*



I Am A Keeper.

*The animals are indeed,
My education,
My obsession,
My religion,
My need.*



*I embrace their beauty and grace.
I marvel at their intricate details,
Each is a living mobile mosaic of art.*

*I contemplate their interactions.....
With the environment,
With each other,
With me.*



*I fancy their fun.
I fetch their food.*

*I respect them from afar and nearby,
Though I do not interfere.*

*I simply let them be.
Remain as they are,
Natural and Perfect.*



*I hold them close to my heart,
Each and every one.*

*And with every breath I take of every waking and sleeping moment.
I am happily consumed with thoughts of these glorious creatures.*

*The Animals.
Our Animals.*

*It is a great responsibility,
Of this I am truly aware.
Thus, I must take advantage of each and every
moment of my very existence.*

*To be a protector,
A provider,
A nurturer,
A speaker.*

I Am A Keeper



SUPPORTED BY



Fostering professionalism
in animal care
among Zoo Keepers

Thieves Steal Horn from Museum Rhino Specimen

A 120-year-old stuffed rhinoceros was back on display in Cape Town, South Africa minus its horn after a nighttime robbery, possibly by an organized gang seeking to sell it on the Asian black market.

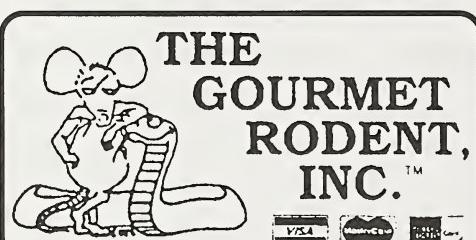
Museum authorities have warned that if the powdered horn is used as an aphrodisiac or other traditional medicine, it could have lethal consequences because it was preserved by the use of deadly arsenic and DDT, a taxidermy process used prior to the mid-20th century.

Cape Town museum officials decided to reopen the mammal gallery including the white rhino, looking tatty and disheveled without its horn. A black rhino mount, which was damaged as thieves tried and failed to hack off its horns, was removed from the display to safety.

"It is a graphic reminder, not only of the modern-day risks of museum management but also of the plight faced by this endangered species in its natural habitat," said Jatti Bredekamp, chief executive officer of Iziko Museums.

Trade in rhino horn is banned as it is an endangered species. But there are huge markets for poachers because it is believed to hold medicinal powers in Asia and the Middle East. Bredekamp said after the theft last week that "natural history museums are being targeted, as security in game reserves has been improved." There has been at least one other similar incident in South Africa.

Source: *The China Post.com* 4/21/08



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AAZK Announces New Members

New Professional Members

Melissa Lewandowski, **Staten Island Zoo (NY)**; Kimberly Warren, **Bronx Zoo (NY)**; Elizabeth McChesney, **North Carolina Zoo (NC)**; Tanith Hirai, **Cape Fear Serpentarium (NC)**; Erin Kovencz, **Busch Gardens (FL)**; Laura Ramos Morgan, **Disney's Animal Kingdom (FL)**; Abby Prindle, **Binder Park Zoo (MI)**; Keiko Sampson and Akacia Meager, **Blank Park Zoo (IA)**; Heidi Wester, Tom Sale, Chivon Ruddock, Colleen Hennigan, Valerie Blythe, Deidra Willingham, Jan Raines, DVM, Sarah Brys, Tim Brys, Marnie Bacon, Cathy Painter and Melissa Medlen, **Dallas Zoo (TX)**; Krystal Webb, **the Aquarium at Moody Gardens (TX)**; Karla Perkins, **Landry's Downtown Aquarium/Denver (CO)**; Gina Gambertoglio, **Oakland Zoo (CA)**; Christine Stevenson, **Fortress of the Bear (AK)**. Beginning with the March 2008 issue of *AKF*, we no longer list the names of those Professional Members who do not list their facility on their application.

Renewing Contributing Members

Kevin R. Shelton
Tampa, FL

Sheila Campbell, Librarian
Columbus Zoo & Aquarium, Powell, OH

James J. Perry, Keeper
San Antonio Zoo, San Antonio, TX

New Institutional Members

Gladys Porter Zoo
Brownsville, TX
Don Farst, DVM, Director

Renewing Institutional Members

Catoctin Wildlife Preserve & Zoo
Thurmont, MD
Richard Hahn, Director

Naples Zoo
Naples, FL
David L. Tetzlaff, Director

Columbus Zoo & Aquarium
Powell, OH
Dusty Lombardi, Director of Living Collections

Greater Vancouver Zoo
Aldergrove, BC, Canada
John H. W. Lee, General Manager

Bowling for Rhinos Event Goes Hi-tech

By Danelle Teetzen, Sedgwick County AAZK Chapter Secretary/Zoo Volunteer
Sedgwick County Zoo, Wichita, KS

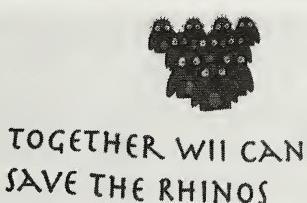
The Sedgwick County Zoo AAZK Chapter's "Bowling for Rhinos" event was held on 14 April 2008 and was a huge success! We decided to put a new spin on the traditional BFR since interest in the event had waned over the past few years. Instead of holding it at a bowling alley, we set up two Wii® video game stations in the zoo education building and did Wii® bowling!



One of our rhino keepers tries his luck at Wii® bowling (Photo: Danelle Teetzen).

We raised nearly \$2,400 in pledges and charged \$5 at the door to cover the cost of pizza and prize expenses. Each person who raised \$25 (or donated it themselves) could bowl. We also had our very own Horticulture Band play and provide entertainment. Between songs, we awarded door prizes and other prizes to the highest fundraiser, highest and lowest bowling score, most entertaining bowler, etc. Some of our prizes included rhino paintings, certificates for a "Meet-and-Greet" with the rhinos, a rhino stuffed animal made out of an old keeper uniform, a "green" bag full of "green" products,

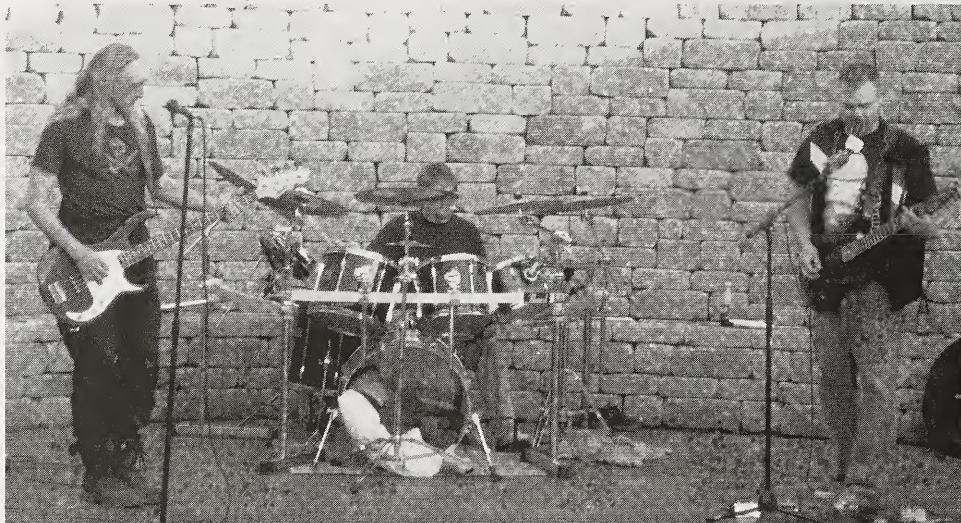
At right: The t-shirt one of our members, Megan Sickles, designed for the event. **Below:** One of the prizes—a stuffed rhino created from an old keeper uniform! (Thanks, Angi Harlan!) (Photos: Micala Teetzen)



gas cards and restaurant gift certificates. We also designed a T-shirt for the event and sold many of those as well.

We had 43 people attend the event, a huge improvement over last year's five! This has definitely revitalized our BFR event. All told, it was a lot of fun and the best turnout ever. Plans are already in the works to make next year's event even better. "Together Wii® can save the Rhinos"!!

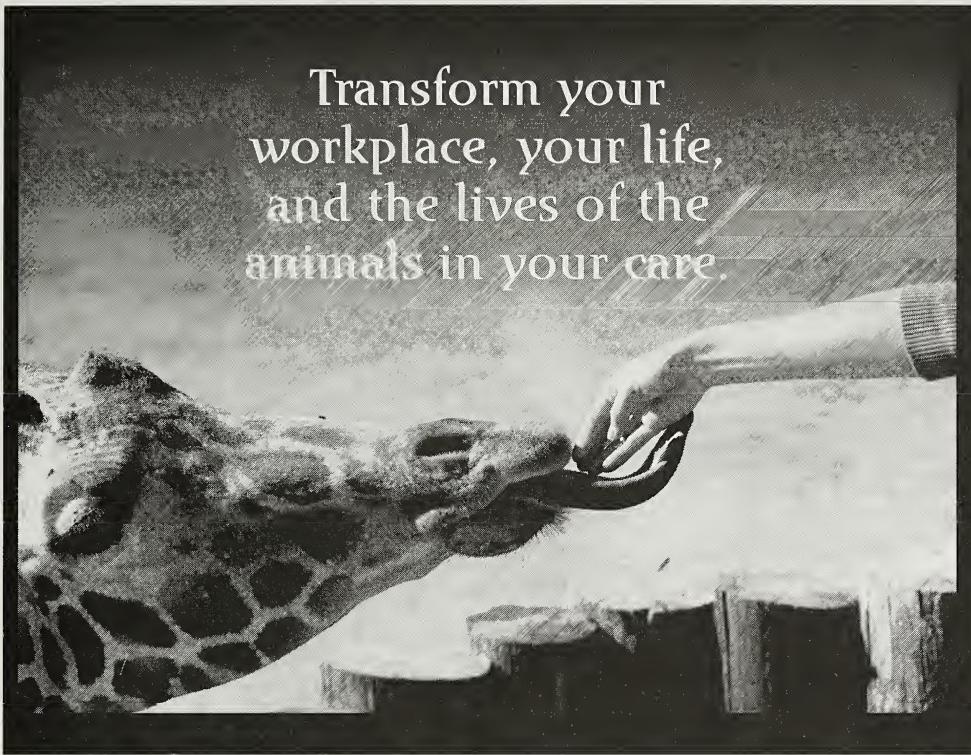
The next event our Chapter is planning is a dog party at a local dog park. Many keepers have dogs and have been wanting to get them together for a play day, so we arranged to use the dog park free of charge. We are going to charge \$5 per dog and hope to raise quite a bit of money and have a great time too!



Our Horticulture Band provided the entertainment (Photo: Danelle Teetzen).

2007 AAZK Conference Proceedings Now Available for Download

The papers, posters and workshop summaries from the Galveston, TX 2007 National AAZK Conference are now available to download from the Member's Only Section of the AAZK website (www.aazk.org) They are available either as a complete download of all materials or as individual papers in pdf format. Proceedings will not be published in hard copy, so this will be your only way to access these materials. If you are not currently registered on the Member's Only Section of the AAZK website, you are encouraged to do so soon. You must be a current member of AAZK, Inc. in order to gain access to this section. Besides the Conference Proceedings, there is also lots of other good information available only to AAZK members in the Member's Only Section. See *Scoops & Scuttlebutt* from the March 2008 issue of *AKF* for further information on what is currently available there. The AAZK Board, Staff and Committees will continue to add information to this section. So check back often to see what's new!



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EO Editor - Rachel Daneault, Disney's Animal Kingdom

An Enrichment Feeding Method for Kiwi (*Apteryx mantelli*)

By Kathy Brader, Senior Bird Keeper
Studbook Keeper for North Island Brown Kiwi in North America & Europe
Smithsonian National Zoological Park, Washington, DC

Kiwis (*Apteryx mantelli*) are an endemic species found in New Zealand and their ancestral line goes back for at least 65 million years. They are the oldest living species of birds left in New Zealand. They are a flightless, nocturnal bird and are the only species of birds that have their nostrils located at the tip of their beak. They have the second best sense of smell of all birds, (due to the size of the olfactory bulb relative to brain size), thus they use their sense of smell to locate food. They are omnivores. Due to the diverse habitat on where kiwis live; the different populations will have different types of food. The majority of what they eat are insects with worms being one of their favorite items (New Zealand has 178 native worm species and 14 exotic species). They also like beetles, larvae, weta (a type of cricket like species), spiders, caterpillars, slugs, crayfish and snails. They feast on berries, seeds, roots and some leaves.

Kiwi can be a difficult species to provide with enrichment due to their nocturnal habits and not being very social animals either with other birds (except their mate) or people. They prefer to be left alone.

But there are ways to provide a kiwi that is kept indoors with some stimulation and the easiest and most inexpensive way is to change the way you feed the birds.

Since it is almost impossible to replicate the exact natural diet due to cost and finding the variety of live insects, captive kiwi are fed a basic captive diet to ensure a more complete diet.

We feed a type of "bird loaf" that is made up of Natural Balance® beef, various chopped greens, vegetables, fruit, Mazuri® Scenic pellets (moistened) and Bird of Paradise pellets. The fruit, vegetables and greens should be chopped to small pieces. We mix this together just like you would make a meatloaf. This makes it very easy to use the feeding tubes, our birds have been on this type of diet

for over five years and really seem to thrive on it. We also raised our newest member "Manaia" (a male that hatched here on February 13, 2006) on it.



At left: tube feeder is filled with kiwi food mixture.
Below, vinyl "placemat" is put around feeder tube



Below: Bottom left, feeder tube with vinyl "placemat" is sunk into the ground of exhibit. Bottom right shows feeder tube remains after Kiwi feeder enrichment.



I saw this method being used at various places in New Zealand. At SNZP we have been using this as a way of enrichment feeding for our indoor birds for three years. We can't use it for our breeding pair as we have other birds (White-Crested Laughing Thrushes [*Garrulax leucolophus*] or Derbyan Parakeets [*Psittacula derbiana*]) that will go down and eat out of the tubes.

We use large size syringe containers, mix the food up and stick it in the tubes. The birds can't reach all the way down, but if you use enough tubes it's not a problem. The tubes have to be wide enough

for the birds to get their bill open to feed. I suppose you could fill the bottom of the syringe container but we haven't seen the need. We use plastic "place mats" with a slits in the middle to help make easier cleaning the excess food that the birds spill. We obtained a roll of the vinyl mats that people use in their homes to protect their carpet. It's easy to clean and cut to what ever size you want.

We break our feeding for the indoor birds into an AM/PM feeding to encourage longer periods of foraging. We also move the tubes daily so the bird must "hunt" for his food.

Our birds took to feeding within two or three days of putting them out and quit eating out of the food pans. I believe this method might be able to be used with different mammal species that probe for food in soil.

References:

Auckland Zoo, Auckland, New Zealand

Kiwi Encounter, Rotorua, New Zealand

Kiwi: The People's Bird, Neville Peat, Otago University Press, 2006

Smithsonian National Zoological Park, Washington DC

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit material for the Enrichment Options Column. Look in the January 2004 issue of AKF for guidelines for articles acceptable for this column's format or contact the editor at akfeditor@zk.kscoxmail.com for a copy of the guidelines. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054, USA. Eds.)

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Allie's Story: The Road to Recovery

A Seven Year History of a Sumatran Orangutan (*Pongo abelii*) with a Neurological Disease

Cindy Cossaboon, Animal Keeper, Denver Zoological Gardens
2300 Steele Street, Denver, CO 80205-4899

Peter Clay, Andy Antilla, Tine Geurts and Rhonda Pietsch (Formerly of the Denver Zoo),
Animal Care Staff, Great Ape Trust of Iowa
4200 SE 44th Avenue, Des Moines, IA 50320-2085



Abstract

Allie, a 13-year-old female Sumatran orangutan (*Pongo abelii*), has a seven year history with an undetermined neurological disease similar to the recurring form of Guillain-Barré syndrome, or Chronic Inflammatory Demyelinating Polyneuropathy (CIDP). The initial episode was in 2001, followed by a period of recovery until a second and more serious episode in the fall of 2004. Following the second episode there was almost complete paralysis of her entire body, although she was able to swallow and her heartbeat and respiration were not affected. Intensive custodial care in a free-contact environment was necessary as she could not feed herself or move her arms or legs effectively. A program of regular physical therapy and massage was begun to help her regain limited use of her arms and hands. In October of 2005, Allie was transferred to the Great Ape Trust of Iowa where her recovery is continuing. At Great Ape Trust, she was introduced to an adult pair of orangutans and lives with them full time. She continues to improve. The physically challenging environment is helping her to continually gain strength and coordination. Her new social partners encourage her to move and actively engage her in play, grooming and other affiliative behaviors. There are six key factors that have led to her ongoing recovery: (1) Allie's character, (2) Mutually trusting relationships between Allie and her caretakers, (3) Initiation of free-contact, (4) Physical therapy and massage, (5) Re-socialization with other orangutans and (6) Collaboration between the Denver Zoological Gardens and Great Ape Trust of Iowa.

Allie's Background Before Her Illness

Allie was born on 30 December 1994 at Yerkes National Primate Research Center in Atlanta, GA where she was raised by her mother Penari. The pair was transferred to The Denver Zoological Gardens, in Denver, CO in 1996, when Allie was about 18 months old. Allie was a playful, physically

normal orangutan before her illness occurred. She enjoyed interacting with her conspecific social partners and with her human caretakers.

At Denver, Allie and Penari had visual and auditory access to another pair of adult orangutans, Robin and Sally. They also shared a common mesh window, where they could visit or play tug of war. Allie and Penari lived together until Penari's sudden death in April 2001, when Allie was six years old. Allie was then introduced to a 16-year-old male, Mias, in June 2001. These two had an uneventful introduction, and developed a very positive relationship.

Beginning in February of 1997, Allie started participating in an operant conditioning training program. Initially she was taught medical and husbandry behaviors by her two caretakers. Allie's trainers felt that by teaching Allie to receive hand injections, the stress of a medical procedure would be greatly reduced. It was also felt that this training program allowed a deepening of her relationships with her caretakers. The philosophy of this program was to be clear and honest with Allie at all times. Beginning with injections, an aversive behavior, Allie learned through trust and positive reinforcement that her caretaker's intentions were always true, even if a behavior might be painful or frightening. Although she had only two caretakers at this time, Allie had many other caretakers who went out of their way to visit her. She was very accepting and playful with them. Allie developed close relationships with several caretakers because of this personal attention.

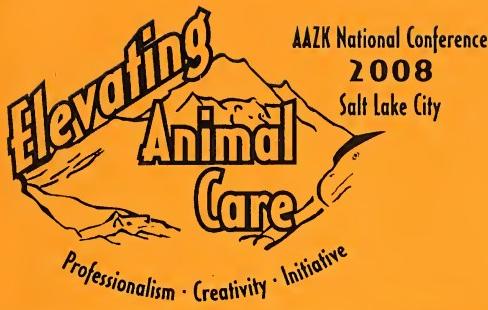
Allie's First Episode

Allie's first symptoms began appearing in the middle of July, 2001 at six years of age, two months after her mother died. She had a couple of bouts of diarrhea, accompanied by lethargy. Within two days she lacked coordination in locomoting, showed increased lethargy, poor appetite and labored breathing following even small amounts of physical activity. Her condition was generally better in the mornings and deteriorated as the day went on. Allie's limbs became very rigid by the end of each day. She was immobilized in order to do a medical workup one week after symptoms began. She was immobilized again a few weeks later and no clear diagnosis was made at this time. Allie began recovering on her own and no further testing was done at this time. By the end of October 2001, Allie was back to much of her normal behavior.

Through the next two years, Allie experienced periods of depression, lethargy, loss of appetite, and jaw tremors. Allie's hands and feet would never fully recover, failing to regain their previous level of dexterity. It is important to note that throughout this initial episode, contact between Allie and her caretakers was exclusively via a two-by-two inch (~ 5cm x 5cm) steel mesh. Her caretakers were able to tell when she was feeling poorly by how complete her behaviors were during a training session. Due to the trust developed through training, Allie allowed her caretakers to see her weaknesses. When Allie was feeling particularly poor, she exhibited a lack of focus during training. One task in the training session would be to point a laser light at an object and ask her to pick the object up. This helped us gauge the severity of stiffness in Allie's hands and fingers. At a particularly stiff time, Allie would not be able to do this easily or at all. Allie was also asked to present her fingers and toes through the mesh. This was particularly difficult if she was experiencing stiffness. There would be times when Allie could not get any fingers through the mesh when asked for her hand. Typically she would use her mouth to push her fingers through the mesh. A third behavior was to ask Allie to open her mouth. If she was not feeling well, she would experience jaw tremors. By asking for these behaviors, we could see daily the extent of her disability. These symptoms continued off and on until her second more serious episode.

Allie's Second Episode – Illness, Treatment and Early Recovery

Allie's second episode began in late November of 2004 at the age of nine. Some obvious symptoms from the beginning of the second episode were jaw tremors and stiff fingers and toes. She also ate only about 10% of her daily diet and was reluctant to leave her nest. When she tried to eat she had difficulty grasping food to bring to her mouth. Allie also had a difficult time getting over to the spigot for water. Allie's caretakers tried to feed her directly when she was close enough to the mesh,



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Registration

This year registration will be offered online **only**. To register click the registration link on our website www.utahaazk.org. For organizations and institutions, the online registration process will allow you to register multiple delegates under one account.

Member (AAZK, ABMA, ICZ) \$195* Nonmember: \$245

* *A late fee of an additional \$50 will be charged after August 1, 2008.*

Don’t Miss the Icebreaker!

Our Icebreaker will be held on Wednesday, September 24th at the Discovery Gateway in the heart of The Gateway shopping district. In keeping with our theme of creativity, this premier children’s museum will enable you to explore the depths of your imagination with hands-on, interactive exhibits in a fun atmosphere you won’t soon forget!

Photo Contest

Enter in the 2008 AAZK National Conference Photo Contest! Entry fee is only **\$10**. The top three entries will win fabulous prizes. All full conference delegates will be able to vote, so start campaigning now. ONLY one entry per delegate. Zoo photos must be 8" x 10", including any matting and they must be taken from the public’s perspective to maintain a naturalistic view. All photos from the contest will be donated to the Silent Auction so you can purchase your favorites. Any entries from institutions that require release forms must submit said form when the entry is submitted. A completed 2008 photo release form signed by the donor and any person(s) in the photo must accompany all entries.

Program

This year the conference program will be changing a bit and we have some exciting plans in store! The National Conference will now include more featured speakers & interactive workshops - enhancing our organization’s commitment to professional development and increasing our delegates’ take home value. Current offerings include dynamic speakers such as Dr. Robert Sapolsky, Amy Sutherland, Tony Vecchio, Polar Bear International scientists, Bert Vescolan and communications expert, Jill Allread. We have workshops on conservation, enrichment, training, problem solving, team building, and a fee-based, full-day symposium (limited to 30 registrants) on Neonatal Care. In addition, a workshop titled “*If I Ran the Zoo*”, will specifically tie in leadership, communication and problem solving techniques regarding all things zoo-related. This workshop will provide animal care professionals with those tools that could help them gain buy-in and “sell” their ideas to peers, managers and visitors. In keeping with our efforts to promote a new and different program, the paper sessions will follow novel, thematic organization under our guiding concepts of *CREATIVITY, INITIATIVE, INFORM & EMPOWER* - offering something for everyone in *every* session! Check our website for more information soon!

Accepted Authors please remember that Final Manuscripts are due **July 15th**

UTAH!

Salt Lake City is Utah's capital and the gateway to the state's renowned natural beauty. Surrounded by mountains that rise more than 10,000 feet, Salt Lake City reflects a remarkable combination of history, culture and recreation. Mountain vistas with snow-capped peaks are less than an hour's drive from the downtown area. Salt Lake combines the amenities of a major metropolitan area with the friendliness of a small, Western city. Hosting the Olympic Winter Games of 2002 established our city as a world-class travel location, while showcasing Utah as an unspoiled destination. Salt Lake has hundreds of restaurants and brewpubs as well as dance clubs and private bars. The seven canyons that flow into the city will be ablaze in colors of gold, red and orange this fall. And don't forget the most asked-about tourist destination in Utah...The Great Salt Lake, one of the most unique ecosystems in the world. The lake provides outstanding scenery, amazing wildlife and the sunsets are breathtaking. The city is the gateway to ten national parks, including Yellowstone, Arches, Bryce Canyon, Zion and the Grand Canyon all within a day's drive. We certainly hope you'll take some extra time to explore all that Utah has to offer! Check out www.utah.com for more info and be sure to consider our pre- and post-conference trips...



Photo by Jason Mathis

Pre-Conference Day Trip ~ Northern Utah Adventure September 24th, 2008

Following an early morning departure (breakfast provided), we will visit the Bear River Migratory Bird Refuge. This area lies where the Bear River flows into the northeast arm of the Great Salt Lake. The Refuge protects critical habitat for migrating birds from both the Pacific and Central Flyways. A guide will take us through the refuge to view the birds and other wildlife. Following a lovely autumn drive through the foothills of Logan Canyon (lunch provided) we will visit a National Wildlife Research field station which is focused on the behavior and ecology of coyotes, with an emphasis on non-lethal control methods. This trip is limited to 28 people. Registration will be on a first come, first serve basis available via the online registration process, so register by **AUGUST 1st** at www.utahaazk.org ! Cost is \$35 per person.



Photo by Eric Schramm

Post-Conference Trip ~ Red Rock Country

September 29, 30, Oct 1st 2008.

MOAB in Southern Utah is along the banks of the Colorado River and in the heart of red rock country. There are more National Parks, State Parks and other major attractions within a 200 mile radius of Moab than any other location in Utah. Lunch will be provided on the four-hour drive. We will be staying at a fantastic hotel in the center of downtown Moab, within walking distance to restaurants, local art galleries and the shopping district. That evening we will experience a cowboy Dutch oven style dinner, followed by a rare nighttime motorboat tour with Canyonlands by Night up the Colorado River surrounded by high canyon walls and lit up by amazing light show. The following day we will be accompanied by a naturalist on a full day hiking tour of Arches National Park. The hiking will be moderate, but everyone must be prepared for high elevations and desert conditions. This park has over 2000 natural red sandstone arches,



amazing plant and animal life, ancient petroglyphs and fossils. That evening, guests are free to explore all that Moab has to offer. Perhaps you would like to reserve an evening jeep tour, boat ride, or rent bicycles? We should arrive back at the Marriott City Center on Oct. 1st by 1p.m. This trip is limited to 28 people. Registration will be on a first-come, first-served



basis available via the online registration process, so register by AUGUST 1st at www.utahaazk.org. Cost for the trip is \$200, excluding hotel. Rooms are available at a special rate of \$89 double occ. or more than double occ. \$99. We suggest you look for someone to room with. **You must book your rooms on your own by August 1st 2008.** We will provide you with the hotel information once you have registered for the trip.



Photos on this page courtesy of CBN Tours

Chapter Challenge

The Utah Chapter of AAZK would like to acknowledge and thank those who have contributed their generous support to 2008 Chapter Challenge thus far: Lincoln Park \$1250+, Galveston \$1250, New Orleans \$500, St. Louis \$500, Little Rock \$500, Henry Doorly \$350, Northern Lights \$350, Puget Sound \$350, Brookfield \$350, San Diego \$350, Snake River \$200 and West Michigan \$100. THANK YOU!

Winners of the challenge will be notified by July 15th.

Zoo Day

Zoo Day, September 26th, is going to be packed full of fun and excitement. Come have breakfast with the birds! **Tracy Aviary** is the second largest public aviary in the U.S. This seven-acre facility holds over 135 different species from Yellow warblers to the Andean Condor. During your visit you will be served breakfast at the historic Chase Mill overlooking beautiful Liberty Park, and then treated to an exciting performance of "*Aviators...Superheroes of the Sky*", a free-flight bird show. All registered delegates will also be offered free admission during the week of the conference.

We say goodbye to our flighted friends and head to Utah's Hogle Zoo, located at the mouth of beautiful Emigration Canyon where the city and mountain views are breathtaking. Right away we will have lunch with the staff, but the day is filled with open houses, behind-the scenes-tours, training demonstrations, enrichment Show & Tells, meet-a-keepers and workshops. And don't forget to vote in the photo contest! There will be a special bird show immediately followed by the first ever all-delegate take home photo. We will wrap up the day with dinner and cocktails highlighted by the Silent Auction.

New This Year!

When they check in and register at the hotel, delegates will have the opportunity to enter their name into a *free drawing* (*no additional purchase necessary) to win a Tundra Buggy® Adventure trip to Churchill for 2009. This will include:

- Pre- and post-Churchill hotel nights in Winnipeg
- Three hotel nights in Churchill
- Two days Tundra Buggy® adventuring
- Dog sledding adventure
- Private slide presentation
- Entrance to Parks Canada Interpretive Centre
- Entrance to Eskimo Museum
- Churchill area tour



Polar Bears International, (PBI), on behalf of **Tundra Buggy Adventure**, (TBA), has generously offered an in-kind donation of **two** individual trips to view polar bears in Churchill via Tundra Buggy®. This package will include airfare for two from anywhere in the continental U.S. or Canada to Winnipeg, MB. Accommodations may be made if the two individuals do not want to share living space during the trip. The trips will be for use during 2009 and will expire on December 31, 2009. The Utah Chapter AAZK will give these trips away through a random, free drawing following the dedicated PBI featured speaker matinee on Thursday afternoon, September 25, 2008. Only *full* conference registrants who are *professional* members of AAZK, Inc. (don't forget to bring your membership card!), and are *present at the time of the drawings* will be eligible to receive these trips. They will be non-transferable and subject to tax in the U.S. Members of the 2008 AAZK National Conference Committee, members of the AAZK Board of Directors, and staff of AAZK, Inc. are not eligible to win these trips. The total value of this package is approximately \$13,000 U.S. For more information, please visit www.tundrabuggy.com and www.polarbearsinternational.org



but this wasn't always possible. At times, long sticks were used to try to feed her. A piece of food was placed on the end of a stick and then pushed towards her through the mesh.

After a few days Allie's condition continued to deteriorate. In addition to the other symptoms, Allie exhibited nystagmus, a rapid, involuntary oscillatory motion of her eyes. Her feet and ankles also became cold and swollen.

In the beginning of December Allie was take to Alameda East Veterinary Hospital to be immobilized for a CT scan. Once she recovered from the anesthesia, it was evident that her physical condition had worsened. She was unable to control movement to any parts of her body except slight movements of her head and she could no longer sit up on her own.

Due to Allie's total inability to care for herself, her caretakers asked for permission to treat Allie in a free-contact manner. Dr. Lynn Kramer, VP of Biological Programs, granted permission to implement a free-contact program with Allie. A protocol was established where two caretakers were allowed to enter Allie's enclosure and care for her (Fig. 1). Because of the extreme needs that Allie had at this time, many other caretakers were introduced into the program, many with whom Allie had previously little contact. Allie's trusting and honest past relationships allowed her to readily accept and trust these new people in her life, and to allow them to care for her in such an intimate manner. During these first few days Allie was restricted to a small recovery cage. Caretakers would go in with her to rotate her body positions as well as to feed her. One caretaker would sit behind Allie and hold her in a sitting position while the other caretaker would feed her. This was the only way her caretakers were able to get enough liquids and food into her.



Figure 1. Allie with two of her caretakers at the Denver Zoo.
(Photo by Michelle Valois)

After several weeks, her caretakers added a very important physical therapy aspect to these interactions with Allie. Initially the therapy consisted of massage to various areas of her body. In her previous training program, she learned the names of various body parts and could recall these behaviors as she was asked for them. A caretaker would ask for her hand or foot, and then the caretaker would pick up her hand or foot, and manually move each finger and toe. This allowed her to be aware of what the caretakers were asking of her and what was needed of her.

By mid-December, Allie had undergone two medical procedures. The first was when she was taken to Colorado State University for further evaluation, including an MRI. Upon returning to the Denver Zoological Gardens and over the next few days, she seemed to grow stronger, starting with rolling from her side to her back and even trying to grasp at a rope. Allie was able to move part of her upper body and had more control over her tongue. She also seemed to be more aware of her surroundings. Allie was able to prop herself up on her elbows while lying on her stomach and was beginning to have more control of her arm movements. Her jaw tremors and nystagmus also became less noticeable in the mornings. The second medical procedure was an examination by a human neurologist. After this procedure she was prescribed oral prednisone, which is used to reduce inflammation, and Azathioprine, which is an immunosuppressant. After reviewing results from a variety of tests, imaging procedures and after consultation with the neurologist, the veterinary staff concluded that Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) was the condition that fit most of Allie's symptoms. CIDP is most closely related to Guillain-Barré syndrome, but CIDP is the relapsing form. With the treatment combination of medication and physical therapy, Allie's strength continued to improve. She could move her right arm to her mouth without help and began giving resistance with both arms during physical therapy. Caretakers began extending Allie's legs until they felt resistance, offering her small toys to try to grasp on her own and massaging her back and shoulders.

Slowly, Allie began sitting up on her own supporting herself with a rope. Allie started to pull herself up using the manila ropes. This was productive for her physical therapy, but she received injuries to her hands because of it. Her entire weight was being supported by her hands when she started to move around using the ropes. Her hands soon were rubbed raw and became swollen and hot. The solution was to wrap the ropes in sheets which made them more comfortable for Allie to grasp and support herself. From that point on, she no longer injured her hands on the ropes. This was an important lesson for the caretakers to take from this time period. Thankfully, Allie allowed her caretakers to apply ointment onto her hands to aid their healing. This was sometimes painful for Allie, but due to the mutually trusting relationships Allie allowed this to occur.

By February 2005, some more signs of her recovery had become evident. Allie tried to "raspberry" (a normal attention getting sound for orangutans) for the first time since her second episode had occurred. This was one of Allie's favorite behaviors. Shortly after that, she began to move her toes and began to grip with them. In earlier physical therapy sessions Allie was asked to grip her caretakers' fingers with her hands. Once she started to move her toes we transferred this idea and asked her to grip our fingers with her feet. At this point her caretakers were continuing to stretch and flex her legs and her hands were gently opened to increase their flexibility.

In March of 2005, she was seen putting weight on her legs while having her feet in the correct position. In April, she began playing with Sally, a neighboring orangutan, through a mesh window. She would stand at this mesh window and play tug of war with sheets or sticks. She was also seen semi-brachiating under the hammock from the back of her holding cage to the front. Some other improvements included her shifting into different areas to eat or drink, and learning how to get to the floor from her hammock without using a nearby shelf. Caretakers often set up Allie's holding areas with enrichment in the areas where they wanted her to travel. Enrichment was used to encourage her to use her hands more often as well.

In May of 2005 Allie began to show clear signs of recovery. She started to make play faces again, which was the first time since her second episode began. Allie was also able to participate in training sessions through the mesh and would shift all the way over to the mesh for the session. This increased the amount of time Allie could work on strengthening behaviors for her body's recovery. She would be asked to stand up to increase leg strength and present her back, which required balance and other similar behaviors. As the behaviors became more difficult, her caretakers were able to evaluate her progress. It was amazing to see through her training what was still too difficult and what had become easy for her to do. By the end of May, Allie had made a nest for the first time. She used her hands to build the nest and was able to keep her balance while in the sitting position. By this time. Allie was also able to shift to use the water spigot again.

During the summer of 2005, management at the Denver Zoo decided that they wanted to relocate Allie to another facility. At this time Allie was given access to other areas of the orangutan facility to gauge how well she could locomote throughout the areas. Once management knew what her skill levels were it would help future facilities decide if they could house her with her present abilities. She was given access to the large dayroom in late June and on her second day climbed over two stories to the top cargo net. At times she would move around so much that she would wear herself out and then needed a couple of days of rest to recover. During this time Allie's affect continued to normalize. She played more with the other orangutans via the mesh and also with her caretakers.

By the end of summer, Allie's toes and feet showed marked improvement. Her caretakers began using a rope to encourage Allie to grasp with her feet during training sessions. Allie was also seen moving her legs into a crawling position while on the ground. Her legs recovered more slowly than her arms. Given that orangutans typically rely much more on their arms than their legs, it was not surprising that Allie's legs recovered more slowly. This also fits with the recovery phase of CIDP.

In October 2005, she was immobilized for her pre-shipment exam before traveling to Great Ape Trust in Des Moines, IA. Dr. David Kenny, Denver Zoo senior veterinarian, was able to hand inject her. When she recovered, she was groggy for most of the day, but did not sleep because she was very nervous. The next several days she continued to be very nervous. On 23 October a caretaker from Great Ape Trust came to visit. By the end of the day, she was making funny faces and letting him place food in her lips. She continued to bond with her new caretaker and even came to the mesh to play with him. Allie was very quick to accept new people into her life because of her earlier positive experiences with new people.

Transfer to Great Ape Trust of Iowa

On 26 October 2005 Allie left for Great Ape Trust of Iowa. The staff at the Denver Zoological Gardens was able to wrap her into a blanket and carry her to her shipment crate without sedation. This was much easier than immobilizing her. The keeper staff at Denver had added a cotton rope to the shipping crate. In hindsight, the rope was not helpful, although the intent was to provide better support during her journey. Allie instead received blisters from holding on to the rope during the shipment. The sores on her hands and fingers made her transition at Great Ape Trust more difficult. Allie's next hurdle would be to learn to locomote around a new environment. Allie's former caretaker stayed for a week and a half at Great Ape Trust. Allie transitioned from her former caretaker to three new ones with clear communication between all. It took a tremendous amount of trust between Allie and her caretakers to continue her physical therapy and wound treatment. Allie seemed to know that the new humans in her life were there to help her and she let them work with her almost immediately. She also accepted the care of Lead Scientist Dr. Robert Shumaker, as well as Great Ape Trust veterinarians.

Husbandry and management at Great Ape Trust

Prior to Allie's arrival, substantial modifications to the physical facility had been made to facilitate her access to all areas of the orangutan building. Many new fire hoses were added, including many from new hose hangers bolted into the ceiling. We analyzed the space for gaps in affordances that would be difficult for Allie, with her physical limitations, before adding the additional "furniture" to help Allie with locomotion through her new physical environment. Consultation with the Denver staff was invaluable during this process of enhancing our building affordances for Allie.

The animal care staff at Great Ape Trust continued the same approach to husbandry which had been started at Denver. With Denver staff providing the bridge, we began immediately to work directly with Allie in a free-contact environment, with appropriate management protocols in place for safety. Minor wounding of her hands during transit required medical treatment that was only possible with free-contact. This helped Allie and Great Ape Trust orangutan caretakers, scientists and veterinarians to quickly begin to establish mutually trusting relationships during Allie's initial period of adjustment to her new surroundings.

Allie received additional blisters on her hands from exploring her new environment. There was a point where she did little locomoting around the building due to the condition of her hands, and at times would move only about three to four feet in one day. With treatment and time her hands became stronger and more calloused. After this initial setback Allie began exploring her new surroundings with vigor, but always knew when she needed to rest. It took about three months for her hands to completely heal.

Physical therapy was continued, initially three times a day for 30 minutes each time. This has evolved to twice a day physical therapy for 15 minutes each time. Within the first month after Allie's arrival, a physical therapist visited and offered concrete suggestions on strategies and approaches to increase the effectiveness of the physical therapy. Many of these suggestions proved impractical, but all of them helped us to imagine creative ways to encourage Allie to make increasing use of her hands, legs and feet. A consulting neurologist visited Allie two weeks after her arrival in Iowa and again four months later. He affirmed that continuing the physical therapy was important to her continuing recovery - wherever the path of recovery led. The physical therapy maintains and increases flexibility in her hands, feet and legs. Initially, the focus was mostly on her hands. Beginning in mid 2006 and continuing in 2008, the therapy focuses equally on her hands, feet and legs. Allie can now put significant weight onto her legs and asking her to "stand up" has become a regular part of her physical therapy. In addition, we ask her to lie down so that we can more easily extend and flex her feet and legs. Usually, she accedes to these requests comfortably. All aspects of her physical therapy, as well as any minor medical attention provided is in a free-contact environment, and done only with Allie's permission and acceptance.

Today Allie moves anywhere that she wishes to in the orangutan building, indoors or in the enclosed outdoor yard. Her locomotion styles include bimanous, which includes use of teeth on fire hoses as well as hands, semi-brachiation under extended walkways equipped with horizontal bars, rolling, scooting (using her arms to pull herself along the mesh) and, very rarely, crawling. Bimanous locomotion is Allie's signature style and, combined with semi-brachiation she goes wherever she wants to, with remarkable speed and confidence. One interesting form of locomotion that we see on occasion is somersaulting in deep bedding. She used to do this for fun at the Denver Zoo and now does it also to locomote.

Allie's desire to be physically proximate to the two other adult orangutans, 30-year-old Azy and 29-year-old Knobi, is an important motivator for her to travel. Allie was introduced to the male Azy in December, 2005. Beginning in January, 2006 she was introduced to the female Knobi. By early February of 2006 all three orangutans were together, with overnight access to all areas of the building. The personalities of the two adult orangutans have been critically important to Allie's successful transition. Both have been consistently gentle and accommodating to her physical limitations. The extended rough play bouts between Allie and Knobi have been very helpful in extending the range of Allie's physical abilities. On occasion, Azy has participated in extended play bouts with Allie. These may sometimes be rough play sessions, but are more typically quiet and gentle. More recently, it seems that both Azy and Allie are interested in spending more time together and seek each other out equally. For some time now, Allie has shifted, eats, and sleeps in the same way as Azy and Knobi, and her daily routine is the same with the exception of two physical therapy sessions a day.

As a result of Allie's increased mobility, we saw a dramatic improvement in her muscle tone (Fig.2). We also saw improved flexibility in her hands, feet and arms. She also began to stand up more often with some support from her arms.

Allie began to demonstrate more of a positive affect over time before her transfer to Iowa. Her full personality returned after she was fully integrated into the orangutan group at Great Ape Trust. Now, Allie is engaged with manipulating and playing with objects, engages in other forms of self-

play and has frequent extended social play sessions with her conspecific social partners. She also has consistently positive engagement with her human caretakers.

Cognitive Enrichment

An additional factor which we believe will facilitate Allie's continuing recovery is her present and future voluntary participation in a number of cognitive research projects. Inquiry into cognition is central to the scientific mission of Great Ape Trust. All such research is non-invasive and participation is completely voluntary for all great apes living at The Trust. In the future, Allie will have opportunities to participate in several tool use studies, a memory study, and the Orangutan Language Project. Research that she currently participates in includes a study on causality involving tool use, a study of locomotion and social spacing, and a longitudinal study of life events and stress.

Conclusion

The following factors are the most important for Allie's ongoing recovery. We invite other institutions to consider all options when faced with the challenge of debilitating illness, including creative partnerships with other facilities.



Figure 2. Allie at Great Ape Trust of Iowa in 2006 (Photo by Steve Pope)

Factors Leading to Recovery:

Allie's Character

Allie has an amazing will to live. She is motivated, determined and she never gives up. She is also strong willed, trusting and at times patient. Allie has faced many challenges in her life but continues to persevere to this day.

Trusting Relationship with Caretakers

We believe that being honest and clear with the apes is the key to having mutually trusting relationships with them, and communication must be in both directions. For example, Allie usually cooperates fully with her physical therapy, giving us her hands to work with when we ask for them, laying down so that we can extend her legs and rotate her ankles or standing up to strengthen her legs. Sometimes she withdraws her hand or foot during physical therapy and her caretakers always respect that and perhaps ask for the other hand or foot to continue her physical therapy session.

Free-contact

Due to Allie's needs, a free-contact program was established at the Denver Zoo and continues today at Great Ape Trust. At the Denver Zoo this aided Allie's initial recovery and at Great Ape Trust it allows her caretakers to optimize the benefits of her ongoing physical therapy as well as carefully monitor and treat any minor medical issues that may arise.

Physical Therapy

Physical therapy sessions have been and remain an important part of Allie's recovery. The sessions have been modified over time as she has regained strength and flexibility. At Great Ape Trust Allie continues to have physical therapy treatments, but they are much more extensive than at the beginning of her recovery.

Socialization

Allie has had a rich social history. Her conspecifics have played an important role in her recovery-inspiring her to interact, play and become fully integrated with the group. She also has a rich social history with her caretakers that continues today.

Collaboration

One of the reasons we feel that Allie made such a relatively easy transition between facilities was due to good collaboration. There were many phone calls, emails and visits. It allowed us to communicate about Allie and she eased into her new home with few problems. A great example of this collaboration was the modifications made to the orangutan building at Great Ape Trust using the knowledge and experience of the Denver Zoo staff to fully accommodate Allie's needs.

In conclusion, our collective experiences in caring for Allie were often challenging. However, her successes were inspiring and motivating for her caretakers. We are optimistic that a bright future awaits Allie. We hope that other institutions might be similarly inspired by Allie's story. We realize that there are a number of other remarkable stories of survival demonstrating a fierce will to live among great apes, both in-situ and ex-situ. Each and every individual matters. In the end, that is perhaps the most powerful message for us all to understand.

Acknowledgments

We would like to thank Dr. Lynn Kramer and Dr. Robert Shumaker for their faith in all of us to make a positive difference for Allie and most especially for their faith in Allie. We would also like to thank Dr. David Kenny, Dr. Felicia Knightly, Dr. Brigitte Hughes, and Dr. Dennis Riordan.

We would like to extend heartfelt thanks to all of the primate staff at the Denver Zoo for their excellent care of Allie during the first few months of her recovery. She is here because of you.

We want to thank Dr. Rob Shumaker, Frances Condit, Michelle Valois, Dr. Felicia Knightly, Dr. Brigitte Hughes, and BJ Schoeberl for their help in editing this paper.

Disclaimer Note: This paper was originally presented at the AZA 2007 Eastern Regional meeting in Des Moines, IA and is posted in the AZA online conference proceedings. It was also presented at the 2007 Orangutan SSP® Husbandry Workshop at the Brookfield Zoo and will be published in the workshop proceedings. It has been updated for this publication.

AAZK Video Night - Submissions Sought

The AAZK Enrichment and Training Committees invite you to submit your enrichment and/or training videos to be presented at Video Night during the 2008 AAZK National Conference. Submissions should be in the following format: 1) In VHS or CD format; 2) No more than seven minutes long; 3) Good quality (steady frame, appropriate or no sound, clear picture); and 4) Videos may be edited for content and to accommodate time restraints.

We would like to see enrichment that encourages species specific behaviors and innovations in training that help facilitate husbandry and specific conditions. All submissions will be put onto one comprehensive CD. A complementary CD will be given to each facility that contributes a video. Please plan on having a representative present during video night to narrate your facility's submission. Submissions are **due by August 1, 2008** and should be sent to: Rachel Daneault, 1200 N. Savannah Circle E., Bay Lake, FL 32830

You will be notified prior to the conference if your video is selected to be viewed at video night. Please contact Rachel Daneault rachel.b.daneault@disney.com or Nikki Bowens rhinogirl1@yahoo.com if you have any questions.

The Animal Training Committee Presents

Training Tales...



Where you can share your training experiences!

*Training Tales Editors – Jay Pratte, Zoo Atlanta; Kim Kezer, Zoo New England;
and Angela Binney, Disney's Animal Kingdom*

Lemur See, Lemur Do: An Example of Observational Learning

*By Christina Stamer, Animal Keeper, Dallas Zoo
AAZK Animal Training Committee Member*

Before I became a zookeeper, I was a teacher. Any teacher can tell you that students learn in many different ways, and a good teacher supports several learning styles in their classrooms. Some people are visual learners, some are auditory learners, others learn by doing. Now that zoo keeping is my career, it seems that I'm still teaching, only my students are a bit furrier, and don't talk back. I've found that animals, just like human students, can have different learning styles.

Animal paintings are always a hit at our AAZK fundraiser auctions, so I decided to begin shaping a painting behavior with our 1.2 collared lemurs (*Eulemur collaris*). To produce paintings, our lemurs walk across a tray lengthwise (essentially a cookie baking sheet) containing paint, and then walk across a second tray, which holds the canvas.

One tray was introduced in the animals' bedroom as an enrichment item to first desensitize the lemurs to its presence. To begin shaping the behavior, the lemurs were targeted to one end of the tray. They were then targeted to the middle of the tray and rewarded for touching the tray with their hands. This was followed by successive targeting toward the end of the tray and beyond the end of the tray, being rewarded for increasing number of hands/feet on the tray until the animal was walking the entire length. Once this portion was well maintained, a second tray was added lengthwise to the end of the first tray.

The steps were repeated, rewarding increasing distances the animal walked across both trays without stopping. Once the two-tray walk was well established, I added the canvas to the second tray and again shaped walking across both trays as before (see Figure 1). Next, it was time to add the dimension of the feeling of paint. I used plain water to begin with, adding a thin layer to the first tray. The animals were rewarded at first

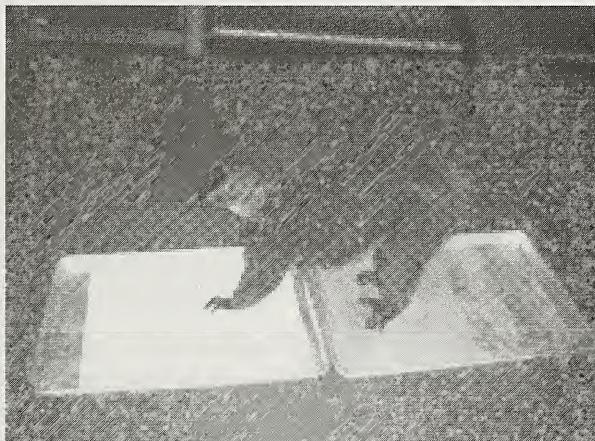


Figure 1: A lemur standing on the paint tray during a session. For simply touching the water in the tray, but they quickly progressed to walking through it and across onto the canvas in tray two. It was then a simple matter of adding a bit of non-toxic finger

paint to the watery tray before we were creating lovely watercolor paintings on the canvas (and the floor, the walls, my boots...) (see Figure 2).



Figure 1: A completed lemur ‘painting’.

During a morning training session, I was setting up the painting, and began with the two kids. They were uncharacteristically uninterested in training, and wouldn’t get anywhere near the trays. Claire had never touched the paint trays, although she had been present for all the training sessions with the kids. But that morning, Claire completely stunned me by walking directly to the front of the paint trays, deliberately walking straight through the paint and unswervingly onto the blank canvas, then off again, sat down in front of me, and looked me straight in the face. You can imagine the jackpot that followed.

This anecdote serves to make a point. Just like people, animals can have different learning styles, and your shaping plan can be affected by your animals’ idiosyncrasies. Whereas trainers would consider it rudimentary to break down behaviors into simple steps in a shaping plan, Claire feels more comfortable watching the entire behavior, mulling it over for a while, and then diving right in. Having flexibility in your training style can accommodate almost any learner.

Photos by: Christina Stamer, Dallas Zoo

ATC Comments:

by Angela Binney, Disney’s Animal Kingdom

This *Training Tale* is a great example of observational learning, or mimicry, which refers to an animal learning by observing the behavior and consequences of another’s actions. As noted by the author, the older animal was sometimes hesitant to participate in training sessions, but was observed the other animals during their sessions. And, though she had not previously received reinforcement for the various approximations involved in this behavioral goal, she new exactly what to do to receive reinforcement once she decided to participate, just from observing the others.

Not knowing this animal, I can only speculate on her reason(s) for hesitation and her sudden change of heart. Could it be that this animal requires more desensitization to the training environment than her younger offspring? As Christina pointed out, animals all learn differently and at different paces. Or, could her hesitation relate to her social rank in the group? (Note: I do not know these individuals, so this is merely speculation on my part for the sake of discussion). The day that she decided to ‘dive in’ (so to speak), also happened to be a day when the others were not actively participating. Perhaps she had previously experienced some displacement by these animals and was avoiding the

Shaping the behavior went quickly and easily with the four-year old male, and took only a little longer with his sister. But this story is about Claire. The 19-year-old mom is sometimes reluctant to train, especially with somewhat complicated behaviors, such as painting. Whenever I would hit a snag with her training, I would always go back a step to see where I might find some help. Deciding instead to concentrate on the two kids for the time being, I forged ahead with their training sessions until they were both making great strides.

training station as a result? This may or may not be the case, but it reminds us that group training adds variables to consider. In addition to focusing on the specific training goal at hand, we also have to consider reinforcing desirable social behaviors such as cooperative feeding and teamwork necessary for everyone to participate as well as avoid reinforcing undesirable social behaviors such as displacement, intimidation, food stealing, territoriality, etc.

This story also reminds us that training can be fun and enriching and does not always need to involve medical procedures or management. Just the act of learning is enriching and stimulating to the animals, not to mention the experience of investigating novel substrates, such as finger paint! And of course the positive reinforcement is enriching in itself (otherwise it would be ineffective, right?). We can use what I call ‘fun’ behaviors (just for fun with no particular need involved) as positive reinforcement for working more ‘serious’ or potentially ‘not so fun’ behaviors (e.g. medical behaviors). Add some fun, enriching behaviors to your training routine to spice things up a bit and add variety to keep these interactions upbeat and unpredictable for the animal. We don’t want to become so ‘consistent’ in our training routines that it becomes too predictable, and therefore boring and un-motivating for both animal and trainer. Remember, training is supposed to be fun!

Lastly, I would like to mention that the author, Christina, is one of our newest ATC members. She is currently a keeper at the Dallas Zoo and has worked with primates, small mammals, birds and reptiles in the zoo setting as well as in the environmental and zoo education fields. She has a BS in Anthropology from Texas A&M, a MS in Primate Conservation from Oxford, and a teaching certificate (grades 6-12 Biology). She will be assisting us with all of our ATC goals (outlined at www.aazk.org). We look forward to working with you, Christina. Thank for you sharing this Training Tale!

You are invited to submit material for the Training Tales Column. Look in the November 2006 issue of AKF for guidelines for entries acceptable for this column’s format. Drawings or photos of training are encouraged. Contact Jay Pratte at jpratte@zooatlanta.org for more details or to submit an entry.

Training Has “Safety Pay-off” at L.A. Zoo

Because he had been trained for a medical procedure, a 300-pound orangutan posed no threat to Los Angeles Zoo visitors when he punched a hole through the mesh surrounding of his enclosure and got out last month. Twenty-nine-year-old Bruno did not leave the area around his enclosure nor was he in a public area, but zoo officials evacuated around 3000 visitors from the grounds as a precaution.

“Fortunately all of our great apes, the staff trained them to allow medical procedures, so the keeper actually put him through his behaviors, and he allowed her to hand inject him with an anesthetic and he went right to sleep. They carried him to his bedroom, and it was all over in about 20 minutes,” said John Lewis, L.A. Zoo Director.

Zoo officials said visitors were never in any danger and the zoo opened as usual the next day. *Source: abc7.com 5/17/08*

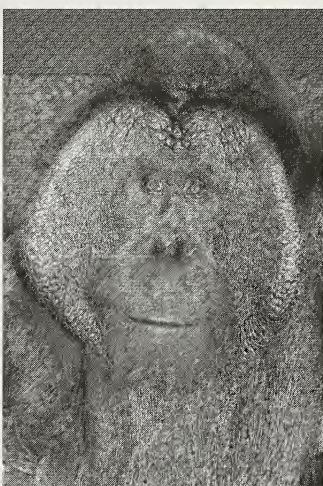


Photo courtesy of Los Angeles Zoo

Shift Training the Grey-Headed Flying Fox

(*Pteropus poliocephalus*)

By

Tara Oler, Kim Szawan, Kim Mathias and Lauren Lear, Keepers
The National Aquarium in Baltimore, Baltimore, MD

Abstract: In April 2005 the National Aquarium in Baltimore acquired 6.0 Grey-headed flying foxes (*Pteropus poliocephalus*) from Healesville Sanctuary in Australia. After quarantine the flying foxes were moved to the new *Animal Planet Australia: Wild Extremes* exhibit. The plan called for the bats to shift on exhibit in the morning and hang on a fabricated tree, then shift back to the overnight enclosure. To accomplish this, we had to train them using a series of cues. After the bats were moved to exhibit holding, we began target training to encourage them to explore their enclosure and the fabricated tree. While target training was successful, the bats would not station on the tree. We realized their enclosure was the most reinforcing area for them and that we needed to change our training methods. We began by herding the bats from their enclosure into the exhibit. Once the bats were on exhibit, we then focused training on getting the bats to shift off-exhibit. This approach presented the bats with several challenges, such as navigating the exhibit space, re-entering the enclosure, and resolving territoriality. Within a few months the bats shifted on and off exhibit regularly.

Background

In April 2005 the National Aquarium in Baltimore acquired 6.0 grey-headed flying foxes from Healesville Sanctuary in Australia for the new *Animal Planet Australia: Wild Extremes* exhibit. This complex, walk-through exhibit, which simulates a river gorge, is 83 feet high [~26m] and has a footprint of about 7000sq. ft. [650.32sq m]. The exhibit features extensive fabricated rockwork with live plants, a series of tanks, and a visitor pathway that is approximately 100 feet long [30.48m]. There are three fabricated trees, made from epoxy, in the exhibit. One of the trees was specifically designed to be the bats' roosting site: it is 20 feet high [6.096m] and it has branches ranging from about one-quarter inch to three inches in diameter [.635-.7.62cm]. The plan called for the bats to roost in the tree on exhibit during the Aquarium's visitor hours and return to their enclosure when the Aquarium closed. Our training goal was to get them to shift on and off-exhibit on cue.

Prior to the exhibit's completion, the bats were housed at the Aquarium's Animal Care Center in a 7.5ft. (l) by 5.5ft. (w) by 8ft. (h) enclosure [2.28m x 1.67m x 2.43m]. Upon arrival at the Center the bats were very nervous. For the first month they would huddle in the back corner of the enclosure whenever a keeper entered the room. This behavior was even more pronounced when a keeper entered their enclosure, which required daily scrubbing and disinfecting. The bats were given juice and water during the day and were fed their full diet around 1600hrs to familiarize them with the feeding routine that would be implemented on exhibit.

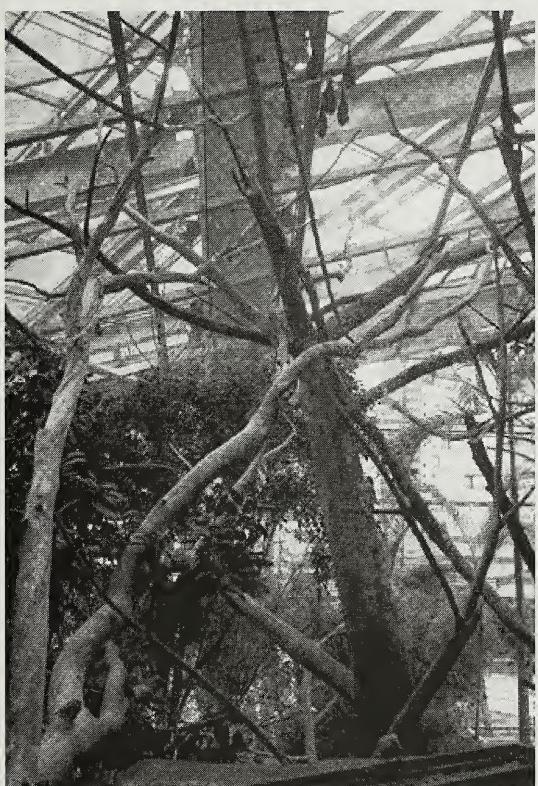
To reduce their nervous behavior we started announcing ourselves as we entered the room and their enclosure by saying 'coming in'. We would also stand in the room, talk to them for a period of time, and wait until they were calm before we left. After about a month, they would stay in position when we entered the room or their enclosure.

The first step in our training program was to build a relationship with the bats. We started stick-feeding the bats using their favorite fruits from the diet, including grapes, banana, and cantaloupe. We used a small plastic stick and placed a piece of fruit on the end. The height of the enclosure required us to stand on a step-stool to reach the bats. The bats were already desensitized to the stool because we used it when placing their food bowls in the enclosure. We began by touching the bats' mouth area with the fruit. Within two weeks all of the bats would accept fruit from the stick.

Each bat was given a name to simplify identification and to track each animal's progress more efficiently. During the stick-feeding sessions we started to use their names when we presented them with food. By the end of July some of the bats would move for the food when we used the command 'come here' along with their name. During the following months, all the bats moved toward the stick for food and responded to their names. The bats were moved from the Animal Care Center to the exhibit on 5 October 2005.

Bat Enclosure and Back-Up

The bats' exhibit enclosure is 12ft. (l) by 10.5ft. (w) x 7ft. (h) [3.65m x 3.2m x 2.133m], a foot shorter than their old enclosure. It is located in a back-up area of the exhibit. The enclosure has five sides and is made of plastic-coated wire. The front side contains a door for people to access the enclosure and a shift door that is used by the bats to enter and exit the enclosure. The door for staff is 25" wide x 61" high [63.5cm x 154.9cm], with the top located 16" [40.64cm] from the enclosure ceiling. The shift door is 48.5" wide x 36.5" high [123.19cm x 92.71cm]; the top is two inches [5.08cm] from the enclosure ceiling. The right side of the enclosure has no doors and looks into a staff-only area. The backside is divided in half; windows cover one half, while other half is against a wall. The other two sides are attached to a wall. The design allows the bats the option to be in a naturally lighted area.



View of Exhibit

door. Training progressed, but the animals began to display dominance issues due to the reduced space in the area of the shift door and the ropes. This was an unexpected hurdle that quickly affected training sessions.

To curb the aggression we used two trainers and introduced more variability into the training sessions. Depending on the group behavior, we used three general approaches. If the bats were not fighting,

The bat tree is directly in line with the shift door. The distance between the shift door and the tree is 8.5ft. [2.59m] and includes a 4.5ft. [1.37m] staff walkway and four-feet [1.219m] of decorative rockwork. Three and one-half-inch diameter ropes were installed for the bats to use to move from the enclosure to the tree.

Target Training: Overcoming Obstacles

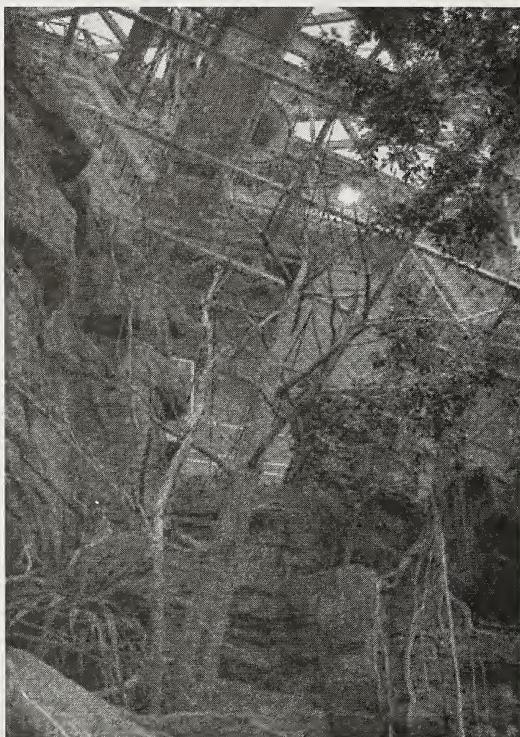
Our goal was to target the bats out of their enclosure, through the shift door, across the three ropes, and onto the bat tree in the morning. In the evening, we expected that we could lure the bats back to the enclosure using their diet. To begin this training process, we continued stick-feeding while asking the bats to move greater distances for their reinforcement. This was done with one trainer two times a day, at 1030hrs and 1430hrs. We marked their progress when one digit (i.e. thumb nail or foot) was moved and secured in a different place on the wire mesh. By 26 October we used enclosure marks such as metal bars or ropes to identify the distance traveled towards the shift door.

Once targeting across the enclosure was a solid behavior, we decided to open the shift

we split them into two groups. If the alpha bat was aggressive towards the rest of the group, one trainer worked the aggressor and one trainer worked the rest of the group. If the group had limited aggression, one trainer began the session, with the second trainer joining the session a quarter of the way through. The type of session depended on the mornings' aggression level and how previous sessions were handled. This variety reduced aggression while helping the bats move toward our training goal.

Bridge Training

Although the variation in training decreased aggression, we still had to address the reduced area in the shifting space. We decided to create a bridge that would increase space between the shift door and bat tree. On 16 November 8.5, we installed a 8.5ft. (l) x 4.5ft. (w) [2.59m x 1.37m] bridge from the top of the shift door to the middle section of the bat tree to encourage the bats to move to the tree. To help the bats feel more secure, we constructed the bridge using the same material as the enclosure. The training team then tried multiple training techniques to encourage the bats onto the tree via the bridge. The first technique was to target the animal through the shift door and onto the bridge. This was completed with two trainers. One trainer inside the enclosure targeted the bat towards the shift door. Once the bat was at the shift door, the trainer inside the enclosure passed the animal to a second trainer positioned outside the enclosure, under the bridge. While some bats were training on the bridge, the first trainer would then work with the bats that would not venture out of the enclosure. Using this system, we were able to train three of the six bats to target onto the bridge, although most were reluctant to stay on the bridge for extended periods of time.



Visitor's View of Tree



A bat's eye view from their enclosure via the shift door

At this point, we modified the technique by using different reinforcers on the bridge and bat tree to keep the animals' interest. The bats were given bowls of baby juice, baby food, and a variety of favorite treats from their diet. With increased foraging options, we assumed the bats would spend more time outside the enclosure and start to investigate the bat tree; however, they did not. At this point we decided to take a different approach.

Non-interactive Training

Beginning 29 November a second technique was initiated. Instead of active training, we began a session by

opening the shift door and placing reinforcements on the bridge and the tree. We would then sit about five to ten feet away from the bats and observe their behavior. These observations were primarily accomplished in the evening so that our feather-cut galah cockatoos (*Elopholus roseicapillus*), which are frightened by the bats flying overhead, could safely be on exhibit during the day. Once the cockatoos were off-exhibit in the evening, we opened the shift door to allow the bats the option of exploring the exhibit.

The first two bats ventured into the exhibit sometime during the night of 30 November but would not readily return to their enclosure. For the next two of weeks, different bats would come and go from the enclosure, but their behavior was inconsistent. This pattern did not allow us to fulfill our original training goal, which was to shift the bats on and off-exhibit by using a cue. We finally secured the group in the enclosure on 12 December. Since the erratic shifting behavior seemed to be due in part to the bats' lack of trust for their keepers, relationship-building became our primary focus,



The bats entering the exhibit via ropes and cargo ladder



A bat exiting the overnight enclosure onto the exhibit

relationship-building became our primary focus. The bats started taking juice from a syringe and hand feeding on 18 December. Once this was a solid behavior the bats were re-introduced to target training.

Our goal was to increase time outside of, and distance from, the enclosure. For the next two months, we worked on targeting the bats out of the enclosure and keeping them occupied on the bridge or bat tree. Beginning on 20 March, we would shut the shift door when one of the six bats was calmly on the bridge. Over the next several days, we tried to increase the number of bats on the bridge at one time. By 31 March only one bat would remain calm on the bridge when the shift door was closed. Again, we realized that our method, which had focused on targeting the bats out of the enclosure, was not working. This was the major turning point in our training plan. We decided to try a completely different strategy.

Successful Training Technique

On 4 April, using negative reinforcement, we herded all the bats into the exhibit for the first time. In preparation, we placed food and treats along the bridge and on the tree. To herd the bats, four trainers in the enclosure used small baffles (food trays) as a barricade and gradually moved the animals towards the shift door. Once the bats were outside the enclosure, the door was closed for the day, and the bats were allowed to explore the exhibit.

For the first three nights the shift door was left open, and food was placed in the enclosure. On 8 April the trainers



At left: Hand-feeding the bats with their favorite fruits



At right: Syringe-feeding the bats a variety of fruit juices



Additional training to increase keeper and bat relationships



Wing display training to voluntarily monitor wing membranes

(All photos for this article by Kim Szawan)

began staying until the exhibit lights were turned off at 2200hrs. to record the individuals that returned to the enclosure to eat. The shift door was shut only when there were two or more bats in the enclosure. It took some time for all the bats to return to the enclosure consistently, but after the third week all the bats returned at least some evenings. Any individual bat out on exhibit for more than three nights in a row was physically caught and placed inside the enclosure.

Our goal was to cue the bats at 1800hrs. and have them secured in their enclosure by 1830hrs. This allowed them half an hour to shift off-exhibit. Over a period of two months we gradually moved the time back in half-hour increments, starting at 2200hrs. We reached the 1830hrs. goal during the first week of June.

The shifting process involves several steps. Before 0900hrs., the trainers enter the enclosure and reinforce the bats for calm behavior. We then raise a cargo mesh ladder from the top of the enclosure to the exhibit ceiling. We open the shift door and simultaneously blow a whistle three times to signal the bats to shift. The bats shift out. The evening procedure is almost the same. At 1800hrs., we raise the ladder from the top of the enclosure to the ceiling, which provides both another means for the bats to reach the enclosure and a large visual cue that signals them to come in. We open the shift door and blow three loud short blasts on a whistle to get the bats' attention and let them know it's time to move. In addition, we call each one by name, tap metal feeding bowls together, and tell them to shift. Once the animals are inside, they are rewarded by using positive reinforcement in the form of a variety of fruit juices, baby food, and an assortment of fruits. We then place a small amount of their diet in a bowl and place the bowl in each bat's designated area or territory. This helps clear the bats from the shift door area, which reduces aggression while others are entering the enclosure. Once the bats are in, or the time limit has passed, we close and secure the shift door, lower the ladder, disperse the rest of their diet, and complete the training records for the day.

The bats are currently returning to their enclosure within a 0-20 minute period. Most of the time, all of the bats come in off exhibit.

Conclusion: Successes and Challenges

The flying fox training was ultimately successful, but there were many challenges to overcome throughout the process. Challenges began when the bats were introduced to their overnight enclosure in the new exhibit, which was still in the final phase of construction. The overnight enclosure is located in a high traffic area, and contractor work was stressing the bats. Training was stopped until we could reduce this stressor. Signs were posted to warn contractors of the bats and ask them to announce themselves when walking near the enclosure. Jingle bells were placed on doors to the vestibule to help prepare the bats for passing traffic. When staff and contractors began to follow these instructions, the bat's anxiety was greatly reduced.

Training was then reinstated, with relationship-building our primary focus; by building a strong relationship with the individual bats we, as trainers, became associated with reinforcement. We worked on relationship-building during scheduled sessions and by going into the enclosure at random times of the day. Major milestones in this process were reached when the bats started moving towards us, and when we graduated from stick feeding to hand feeding individual bats.

Although the bats were successfully target trained, targeting was found not to be the best method for shifting the bats out of the enclosure, and a new method—herding—was implemented. While perhaps not the ideal method, herding the bats onto exhibit was successful. Initially, the time allotted for the bats to exit the enclosure was approximately ten minutes. After three days of shifting the bats on and off-exhibit, the baffles were not needed. The bats quickly learned that when the door opened it was time to shift. Presently, it takes approximately 15 seconds for all the bats to exit the enclosure.

Other challenges arose when all the bats shifted onto exhibit. Instead of hanging in the tree intended for their use, they hung from the ceiling wire. This issue was addressed immediately by covering

the ceiling wire in the enclosure so the bats could only use ropes and branches to move around. We thought the bats would become desensitized to the wire and would use the ropes to go out to the tree and roost. However, the bats continued to hang from the ceiling wire. This forced us to reconsider the vision of the exhibit and we are no longer attempting to alter roosting preferences.

All of the bats initially experienced some difficulty navigating their way into the overnight enclosure. Naturally in the wild, large flying foxes typically “crash-land;” in the exhibit, they crashed into trees, the enclosure roof, or wall surfaces to halt flight. Due to the stress and risk of injury, they prefer to walk across the ceiling wire or their enclosure wire to get around rather than fly to a desired location. To assist them in shifting off-exhibit, more ropes were added to the bat tree, the eucalyptus trees around the enclosure, and to the ceiling wire. A ladder made of cargo mesh was added from the ceiling to the enclosure roof so the bats could move directly from the ceiling down to their enclosure entrance. This ladder is used for shifting the bats on and off exhibit and also serves as a cue to begin the shifting process.

Aggression, a natural behavior of bats, has been the biggest problem throughout this process. Each bat has a territory within the enclosure, and the dominance hierarchy changes very frequently. Aggression has also led to some bats not returning to the enclosure in the evening.

Decreasing aggression is a challenge that has been approached in several ways. Barriers, including towels, shower curtains, and plywood sections, have been placed inside the enclosure. Plywood was also added to the roof of the enclosure to deter aggression between bats inside and outside the enclosure. To increase natural foraging behavior, there are more food bowls in the enclosure than animals, and food enrichment is added to the enclosure after the full diet has been dispersed. Examples of food enrichment include skewers of corn on the cob, suet feeders filled with fruits and vegetables, nectar feeders, and food on hooks. This enrichment is placed throughout the enclosure on neutral ground. Another approach to decrease aggression is to give the bats only a few pieces of their diet in each bowl until the shift door is closed for the evening. It is natural for this species of bat to be territorial, and although these measures have helped, this challenge will be ongoing.

Once these challenges were addressed, a target time for getting the bats into their enclosure was set for 1800hrs. Beginning 18 April, the door was shut at 2200hrs., and the time allotted for the bats to return to the enclosure was slowly decreased by half-hour increments. By 4 June, the bats started returning to the enclosure around 1800hrs., and the door was closed at 1830hrs. Once the target shift time was met, two new staff members were introduced. These evening staff members would be responsible for shifting the bats off of exhibit once the behavior was considered concrete. On 15 June we began working with the new staff on shifting procedures. The shift training process was considered a solid behavior by early August, and the new staff members were on their own to shift the bats by mid- October. We continue to shift the bats out between 0800hrs. and 1000hrs. and cue them to shift back in at 1800hrs. so that all bats are in the enclosure by 1830hrs.

Our future training goals include scale training and voluntary wing display. Weight change relates to dominance and occurs often within the group. With this rapid change, scale training would be very useful. Scale training would make monitoring weights safer and less stressful for the bats and staff. Voluntary wing displaying will allow trainers to examine the bats’ wings without having to handle the animals.

This entire training process has forced us to be flexible. It was a learning experience for all involved. When obstacles arose, we discussed multiple options and tried new approaches to find the best solution.

Acknowledgements

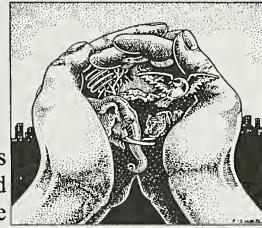
We would like to thank the following people for their time, ideas, and support throughout this lengthy process: John Seyjagat, Sue Hunter, Heidi Hellmuth, Liz Evans, and Tami Goodman.

Conservation/Legislative Update

Column Coordinators: Becky Richendollar, North Carolina Zoo
and Greg McKinney, Philadelphia PA

This month's column was put together by
column co-coordinator Greg McKinney

Tasmanian Devil to Get Endangered Species Listing - Australia's Tasmanian devil (*Sarcophilus harrisii*), will be listed as an endangered species as a result of a deadly and disfiguring cancer outbreak. The disease, a fast-growing head tumour which spreads over the marsupial's face and mouth and prevents it from eating, often killing it within months, has cut the island's devil population in the wild by as much as 60%. A spokeswoman for Tasmania's Primary Industries Minister David Llewellyn told



the Australian Broadcasting Corporation that the animal would be upgraded from a vulnerable to an endangered species so that the "appropriate resources and effort" can be poured into protecting it. The government has also backed a plan to build an "insurance population" of healthy Tasmanian devils at wildlife reserves, zoos and other protected areas.



(Photo: Meena Jones)

"If required, these animals could be utilized to help re-establish Tasmanian devil numbers in the wild," Llewellyn said.

The facial tumour is extremely unusual in that it is a contagious cancer, spread from devil to devil by biting.

The devil is the world's largest marsupial carnivore and now only lives in Australia's southern island state. Early European settlers named the feisty marsupial the devil for its spine-chilling screeches, dark appearance and reputed bad temper which, along with its steeltrap jaw, made it appear incredibly fierce. Source: Agence France-Presse (AFP), 19 May 2008

Relocation of Endangered Chinese Turtle May Save Species - There are only four specimens of the Yangtze giant softshell turtle (*Rafetus swinhoei*) left on Earth—one in the wild and three in captivity. In order to save this species from extinction, conservation partners from the Wildlife Conservation Society (WCS) and the Turtle Survival Alliance (TSA), working in conjunction with partners from two Chinese zoos and the China Zoo Society, recently paired two of them. A still reproductive, more than 80-year-old, female, living in China's Changsha Zoo has been introduced to the only known male in China, a more than 100-year-old living more than 600 miles away at the Suzhou Zoo. In early May, turtle biologists, veterinarians, and zoo staff from partner organizations convened at the Changsha Zoo to collect and transport the female to the Suzhou Zoo where she joined her new mate to potentially save their entire species. The move was coordinated to coincide with the female's reproductive cycle.

"This is a story of hope for a species truly on the brink," said Colin Poole, Director of the Wildlife Conservation Society's Asia Programs. "We are extremely grateful to our conservation partners both in China and here in the U.S. who made this historic move possible. Now that the turtles are together, we are optimistic that they will successfully breed."

"I hate to call this a desperation move, but it really was. With only one female known worldwide, and given that we have lost three captive specimens over the past two years, what choice did we have? The risks related to moving her were certainly there, but doing nothing was much riskier," said Rick Hudson, TSA co-chair and Fort Worth Zoo conservation biologist.

Listed at the top of the World Conservation Union's Red List, the Yangtze giant softshell turtle is the most critically endangered turtle in the world. Its status in the wild has long been recognized as grim, but extinction risk now is believed higher than ever. Much of its demise has been attributed to

pollution, over-harvesting for Asian food markets and habitat alteration. Biologists saw no other alternative but to save the species by any means necessary. Still, the risks were high—relocating an animal this age can be highly stressful for it and research shows that breeding attempts by males can become aggressive. However, since the female has arrived safely and is settling well into her new habitat at the Suzhou Zoo, biologists are optimistic for breeding success.

The Bronx Zoo-based WCS and the Fort Worth Zoo-based TSA coordinated the critically important move; TSA provided much of the funding, animal reproduction and technical expertise while WCS provided veterinary and logistical support and coordination with wildlife partners in China and New York. Other project partners include Ocean Park and Kadoorie Farm and Botanic Garden, both in Hong Kong. *Source: ScienceDaily and Wildlife Conservation Society, 23 May 2008*



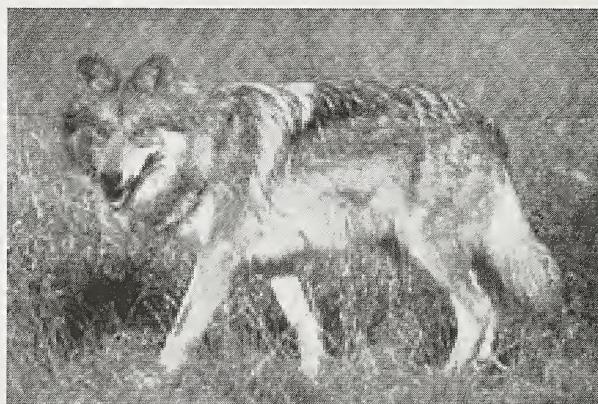
(Photo: Gerald Kuchling/TSA)

Congressional Testimony Reveals Political Interference in Mexican Wolf Management - The House Natural Resources Committee heard testimony on May 21st from retired U.S. Fish and Wildlife Service Mexican Wolf Recovery Coordinator David Parsons that political interference in management decisions was to blame for the low numbers of endangered Mexican gray wolves (*Canis lupus baileyi*) in the wild. At the hearing, entitled “The Danger of Deception: Do Endangered Species Have a Chance?,” Parsons spoke about a “process within a process,” in which a 2005 public comment period on the five-year review of the Mexican wolf reintroduction program was interrupted by two private meetings between senior regional officials of the Fish and Wildlife Service and livestock interests, arranged at the request of Representative Steve Pearce, R-N.M. After the Pearce meetings the USFWS issued a conditional moratorium on releases of new wolves into the wild, despite the fact that the wolf population had dropped by 20% during the previous year. (The moratorium ultimately did not take effect, because a minimum number of breeding pairs did not exist.)

In addition, the suspect “process within a process” helped persuade the Fish and Wildlife Service to adopt its Mexican wolf control protocol, SOP 13, despite warnings by independent wolf scientists that federal shooting and trapping of wolves should be reduced and not increased in order to comply with the law. As predicted by the scientists, SOP 13 increased mortality and undercut population growth. It has resulted in the stagnation of the endangered wolf population at around 50 animals. The wolf population was intended to reach over 100 animals by the end of 2006.

“The Mexican wolf is not on a path to recovery because adaptive management has been turned on its head,” says Parsons, who now represents the Rewilding Institute, a conservation think tank based in Albuquerque. “This congressional oversight hearing shines a bright light on the unscrupulous machinations that result in dead wolves and orphaned pups from North America’s most imperiled mammal,” said Michael Robinson of the Center for Biological Diversity.

The Mexican wolf was exterminated from the wild by a U.S. government poisoning and trapping program, was saved by captive propagation, and was reintroduced to Arizona and New Mexico in 1998. A count at the end of 2007 revealed 52 wolves and just three breeding pairs — a lower number of wolves than was found at the end of 2003, and the same number



(Photo: US Fish & Wildlife Service)

of breeding pairs. A lawsuit filed by the Center for Biological Diversity in 2006 has resulted in an ongoing federal rule-change process with the potential to reform wolf management, but that process itself may be vulnerable to political manipulation. The Center is closely monitoring the Bush administration's moves.

Parsons' testimony, submitted for the record, can be read on the House Natural Resources Committee's Website at: http://resourcescommittee.house.gov/images/Documents/20080521/fc/testimony_parsons.pdf.
Source: Center for Biological Diversity, 22 May 2008

Decision Announced on Polar Bears Protection Under Endangered Species Act - Secretary of the Interior Dirk Kempthorne announced on May 14, 2008 that he is accepting the recommendation of U.S. Fish and Wildlife Service Director Dale Hall to list the polar bear (*Ursus maritimus*) as a threatened species under the Endangered Species Act (ESA). The listing is based on the best available science, which shows that loss of sea ice threatens and will likely continue to threaten polar bear habitat. This loss of habitat puts polar bears at risk of becoming endangered in the foreseeable future, the standard established by the ESA for designating a threatened species.

In making the announcement, Kempthorne said, "I am also announcing that this listing decision will be accompanied by administrative guidance and a rule that defines the scope of impact my decision will have, in order to protect the polar bear while limiting the unintended harm to the society and economy of the United States." Kempthorne further stated, "While the legal standards under the ESA compel me to list the polar bear as threatened, I want to make clear that this listing will not stop global climate change or prevent any sea ice from melting. Any real solution requires action by all major economies for it to be effective. That is why I am taking administrative and regulatory action to make certain the ESA isn't abused to make global warming policies."



(Photo: US Fish & Wildlife Service)

In January 2007, the Fish and Wildlife Service proposed listing the polar bear as threatened throughout its range based on receding sea ice. At that time, Secretary Kempthorne directed the Fish and Wildlife Service and the USGS to aggressively work with the public and the scientific community to broaden understanding of what is happening with the species. In September 2007, the USGS delivered to the Fish and Wildlife Service nine studies related to the future condition of the polar bear and its habitat.

Declines in Sea Ice Documented - Kempthorne illustrated the listing decision with charts depicting satellite images of the differences in sea ice from the fall of 1979 to the fall of 2007. Last year, Arctic sea ice fell to the lowest level ever recorded by

satellite, 39% below the long-term average from 1979 to 2000. The amount of sea ice loss in years 2002-2007 exceeded all previous record lows.

In developing the nine studies it delivered to the Fish and Wildlife Service, the USGS relied upon ten peer-reviewed climate models, all of which project a decline in Arctic sea ice in the future. In particular, the models project declines in September sea ice of more than 30% by the middle of the 21st century. Four of the ten models project declines in September sea ice in excess of 80% by the mid -21st century. Seven of the 10 models show a 97% loss in September sea ice by the end of the 21st century. Based on actual observations of trends in sea ice over the past three decades, these models may actually underestimate the extent and change rate of projected sea ice loss.

Under the ESA, five factors determine whether a species is to be listed. One of those factors is whether there is present or threatened destruction, modification, or curtailment of habitat. According to the ESA, a species is listed as "threatened" when it is at risk of becoming "endangered" within the foreseeable future throughout all or a significant portion of its range. In contrast, a species is "endangered" when it is currently in danger of extinction throughout all or a significant portion of its range. U.S. Fish and Wildlife Service Director H. Dale Hall recommended the listing decision.

U.S. Geological Survey Director Mark Myers concurs with the scientific findings that support the decision. The U.S. Fish and Wildlife Service drew upon biological information on the bear, careful consideration of whether the bear can adapt to new habitat conditions, over 30 years of actual sea ice observations, and dozens of studies and models on sea ice.

4(d) Rule and Marine Mammal Protection Act - In making the decision to list the polar bear as a threatened species, Kempthorne also announced he was using the authority provided in Section 4(d) of the ESA to develop a rule that states that if an activity is permissible under the stricter standards imposed by the marine Mammal Protection Act, it is also permissible under the Endangered Species Act with respect to the polar bear. This rule, effective immediately, will ensure the protection of the bear while allowing us to continue to develop our natural resources in the arctic region in an environmentally sound way. The conservation measures provide that the production, interstate sale, and export of native handicrafts by Alaska natives may continue and that the subsistence harvest of polar bears is not affected.

ESA Not Intended to Regulate Global Climate Change - In making the announcement today, Secretary Kempthorne reiterated President Bush's statement last month that the ESA was never intended to regulate global climate change. "Listing the polar bear as threatened can reduce avoidable losses of polar bears. But it should not open the door to use of the ESA to regulate greenhouse gas emissions from automobiles, power plants, and other sources," said Kempthorne. "That would be a wholly inappropriate use of the ESA law. The ESA is not the right tool to set U.S. climate policy."

President Bush said, "The Clean Air Act, the Endangered Species Act and the National Environmental Policy Act were never meant to regulate global climate change." He said, "There is a right way and wrong way to approach reducing greenhouse gas emissions. The American people deserve an honest assessment of the costs, benefits and feasibility of any proposed solution. Discussions with such far-reaching impact should not be left to unelected regulators and judges but should be debated openly and made by the elected representatives of the people they affect." Kempthorne said, "This Administration has taken real action to deal with the challenges of climate change."

Our incentives for power production from wind and solar energy have helped to more than quadruple its use. The President explained we have worked with Congress to make available more than \$40 billion in loan guarantees to support investments that will avoid, reduce, or sequester greenhouse gas emissions or air pollutants. In remarks in April, the President said that the Administration and the private sector plan to dedicate nearly a billion dollars to clean coal research and development.

Memorandum of Understanding with Canada - Kempthorne acknowledged Canada has not listed polar bears as threatened even though they have two-thirds of the world's population of the species. "Last week, I went to Canada and explored this issue. The Canadian law is different from U.S. law with respect to endangered species, both in its criteria for listing and administrative process for making listing determinations."

While in Canada, Kempthorne signed a Memorandum of Understanding with his Canadian counterpart, John Baird, the minister of environment, for the conservation and management of polar bear populations shared by the U.S. and Canada.

Next Steps - To make sure the ESA is not misused to regulate global climate change, Kempthorne promised the following actions:

- The U.S. Fish and Wildlife Service is proposing a 4(d) rule that states that if an activity is permissible under the stricter standards of the Marine Mammal Protection Act, it is also permissible under the ESA with respect to the polar bear. This rule, effective immediately, will ensure the protection of the bear while allowing us to continue to develop our natural resources in the arctic region in an environmentally sound way.
- Director Hall will issue guidance to staff that the best scientific data available today cannot make a causal connection between harm to listed species or their habitats and greenhouse gas emissions from a specific facility, or resource development project or government action.
- The Department will issue a Solicitor's Opinion further clarifying these points.

- The Department will propose common sense modifications to the existing ESA regulatory language to prevent abuse of this listing to erect a back-door climate policy outside our normal system of political accountability.

Additionally, the Department will continue to:

- monitor polar bear populations and trends,
- study polar bear feeding ecology,
- work cooperatively with the Alaska Nanuuq Commission and the North Slope Borough for co-management of the polar bears in Alaska,
- provide technical assistance to the participants of the 1988 North Slope Borough Inuvialuit Game Council Agreement for the conservation of polar bears in the Southern Beaufort Sea region and monitor the effects of oil and gas operations in the Beaufort Sea region.

Source: U.S. Department of the Interior, 14 May 2008 - Note: This statement and supporting documentation can be viewed at http://www.doi.gov/issues/polar_bears.html

Common Missouri Bat Joins List of Global Warming Victims - The polar bear isn't the only species on thin ice. Missouri and Kansas also have endangered species that are affected by climate change, biologists say. One such species is the Indiana bat (*Myotis sodalis*). Their numbers in Missouri have plummeted as winter temperatures in their hibernation caves have risen, said Bill Elliott, cave biologist for the Missouri Department of Conservation. "There's a general consensus that the Indiana bat has been severely affected by climate change," Elliott said.



(Photo: Adam Mann, Environmental Solutions)

The bats hibernate during winter in caves in central and southern Missouri, he said. In summer they feed and produce young in northern Missouri. Bats can eat half their weight in insects each night. Populations of the Indiana bat — which is on both the federal and the Missouri endangered list — are holding steady in most other Eastern and Midwestern states, Elliott said. Public and private cave conservation efforts include special gates at cave entrances to keep people from disturbing the bats during winter. But in Missouri, the number of Indiana bats is still decreasing despite those efforts, Elliott said. They've declined from about 300,000 in 1979 to 16,000 or fewer today.

Meanwhile, researchers have found that winter temperatures in their hibernation caves have increased five to seven degrees above the optimum for the species, he said. Although temperatures in caves are somewhat steady, air does move in and out, and they can change

temperature from winter to summer. The Indiana bat prefers caves with chilly conditions, such as those with openings where cold air can settle downward during winter. But with warmer winters, they may not hibernate long enough to protect fat reserves in their bodies at a time when food is not available.

"These bats are probably waking up more often, and they're expending energy," Elliott said. "It can make them more vulnerable to starvation. They may starve to death before spring. It also makes them more susceptible to disease."

Other plants, insects or animals already scarce in our region could be affected, too. Some plants growing in cool, shady woodland fens or near bluffs with water seeps are northern species that have survived in the region since the last glacier retreated. They could be adversely affected by global warming, said Tim Smith, a botanist for the Missouri Department of Conservation. Many other native plants would be affected more if that warming also triggered changes in rainfall patterns.

Such changes would also affect a number of endangered creatures in Kansas, especially those in streams, said Murray Laubhan, environmental services chief for the Kansas Department of Wildlife and Parks. The endangered Topeka shiner (*Notropis topeka*) and the endangered rabbit'sfoot mussel (*Quadrula cylindrica*) both live in clearwater streams fed by springs and seeps. Hotter temperatures

could cause more use of ground water for drinking and irrigation, Laubhan said, lowering the water table and flows into streams.

"All of the sudden, our mussel populations and darters (small fishes) in streams would be history," he said. "Their habitat is clearly defined, and they can't get from one river to another." *Source: Kansas City Star; Bill Graham, 2 June 2008*

Caribbean Monk Seal Becomes Extinct - Federal officials have confirmed what biologists have long thought: The Caribbean monk seal has gone the way of the Dodo. Humans hunting the docile creatures for research, food and blubber left the population unsustainable, say biologists who warn that Hawaiian and Mediterranean monk seals could be the next to go. The last confirmed sighting of a Caribbean monk seal (*Monachus tropicalis*) was in 1952 between Jamaica and Mexico's Yucatan Peninsula. The National Oceanic Atmospheric Administration's Fisheries Service confirmed recently that the species is extinct. Kyle Baker, a biologist for NOAA's Fisheries Service southeast region, said the species is the only seal to become extinct from human causes.

The seals were first classified as endangered in 1967, and wildlife experts investigated several reported sightings over the past few decades. But officials determined they were other seal types. The federal agency says there are fewer than 1,200 Hawaiian (*M. schauinslandi*) and 500 Mediterranean monk seals (*M. monachus*) remaining, and their populations are declining. The Hawaiian monk seal population, protected by NOAA, is declining at a rate of about 4 % annually, according to NOAA. The agency predicts the population could fall below 1,000 in the next three to four years, placing the mammal among the world's most endangered marine species.

"When populations get very small, they become very unstable," Baker said. "They become more vulnerable to threats like disease and predation by sharks."

Vicki Cornish, a wildlife expert at the Ocean Conservancy, said the fate of the Caribbean monk seal is a "wake-up call" to protect the remaining seal populations. "We must act now to reduce threats to existing monk seal populations before it's too late," she said. "These animals are important to the balance and health of the ocean. We can't afford to wait."

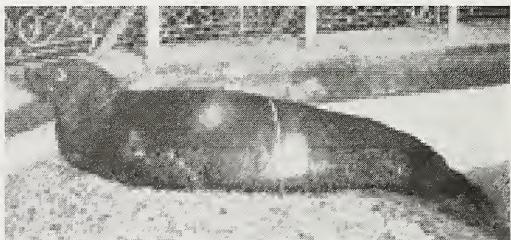
Monk seals are particularly sensitive to human disturbance. And the sea creatures have been losing their food supply and beaches, officials say.

"Once Hawaii, the Caribbean and the Mediterranean were teeming with fish, but these are areas under severe fishing pressure," Cornish said. "They'll eat almost anything — shellfish or finned fish — but their food supply is waning and they're in competition with man."

The Caribbean monk seal, first discovered during Christopher Columbus' second voyage in 1494, once had a population of more than 250,000. But they became easy game for hunters because they often rested, gave birth or nursed their pups on beaches. From the 1700s to 1900s, the seals were killed mainly for their blubber, which was processed into oils, used for lubrication and coating the bottom of boats. Their skins were used for trunk linings, clothing, straps and bags.

The endangered Hawaiian monk seals face different types of challenges, including entanglement in marine debris, climate change and coastal development. About 80 to 100 live in the main Hawaiian Islands and 1,100 in the largely uninhabited Northwestern Hawaiian Islands, a marine national monument.

As for the Caribbean monk seal, NOAA said it is working to have them removed from the Endangered Species List. Species are removed from the list when their populations are no longer threatened or endangered, or when they are declared extinct. *Source: Associated Press, Jaymes Song, 7 June 2008*



(Photo: New York Zoological Society)

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